The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

OL. 81, No. 21 CHICAGO, ILLINOIS NOVEMBER 24, 1923

HE FUNCTION AND PROPER FIELD OF ACTIVITY OF THE PUBLIC HEALTH OFFICER

S COMPARED WITH THE PRIVATE PRACTITIONER

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In promoting the betterment of public health, the ivate practitioner and the public health official must perate to bring about the desired results. While cial functions and fields of activities of health offi- s and private practitioners may differ, their objective aims are the same—to promote positive health for members of society and to relieve the more unfor- nate persons of disease and suffering.

At the outset, it may be stated that there is one gen- l function and one field of activity in which both lth officers and private practitioners must join, and it is the function and field of *active* (*not passive*) peration. As in all other forms of human activity, peration between medical practitioners and health cials means operation together for a common ect, or joint action, aid and help. It has been d that cooperation has a moral basis. If a health cer always thinks in terms of his rights and powers, l gives little consideration to his obligations and ties it is certain that he will be a misfit, unable to rk with any one, be he physician or layman. If a vate practitioner thinks only of his individual rights forgets his obligations, he, too, will be a failure so as cooperation is concerned. The ideal toward ich we must work in bringing about active coopera- n between private practitioners and health officers is t *moral aspect which makes it possible for health* cers to think chiefly of their obligations, duties and ponsibilities, and to consider carefully the rights of rs; and which results in a more definite considera- on the part of private practitioners of their own gations and of the rights of others.

NCTIONS AND PROPER FIELDS OF ACTIVITY OF THE HEALTH OFFICER

. *The Local Health Officer.*—The local board of th is the oldest and the most responsible public th unit. As its chosen executive officer, the l health officer should be the public health leader educator of his community. However, he must ys remember that, except in those few instances hich state laws permit a local community to do with its local board of health and give almost cratic power to the local health officer, the local board of health has directive power and the right to make regulations, and decide policies of administration. The local health officer acts as the agent of the board and takes such action as may be delegated to him when the board is not in session.

The powers and duties and the fields of activities of local health officers may differ somewhat in the various states, depending on the laws of such states. In general, as required in New York State, it may be stated that these are to:

1. Make an annual sanitary survey and maintain a continuous sanitary supervision over the territory within their jurisdiction.
2. Promote the spread of information as to the causes, nature and prevention of prevalent diseases, and the preservation and improvement of health.
3. Take such steps as may be necessary to secure prompt and full reports by physicians of communicable diseases, and prompt and full registration of births and deaths.
4. Enforce within their jurisdiction the provisions of the public health laws and the sanitary code.

In addition to these general duties, in certain states the local health officer also is charged with the function not only of making sanitary inspections of school buildings but of being responsible for the medical examination of school children. In New York State, the latter work is carried on under the supervision of the educational authorities through specially appointed school physicians.

In all of such work we would emphasize particularly that the public health officer should be chiefly a public health teacher and not merely a sanitary policeman.

2. *The County Health Officer.*—In those states having laws permitting the employment of county health officers or general district health officers for counties, such health officers possess all the powers and duties conferred on local health officers within their particular jurisdictions. Under such a law, the local health officers within a general health district, or county, act as deputies to the general district (or county) health officer.

3. *The State Health Officer.*—There are two forms of state health organizations, one in which the power and authority is vested in a state board of health, consisting of several part-time officials, which employs a secretary or executive officer usually on a full-time basis. Most of the states continue to maintain such an organization. Some of the more progressive states, such as New York, Massachusetts and Maine, have reorganized state health work in such a way that the chief power is vested in a commissioner who has the assistance of an advisory council.

In New York State, provision has been made for the employment of sanitary supervisors, whose chief functions are to supervise the work of local health officers in their respective districts and to act as the agent of the state health commissioner.

The outstanding need in our entire future health program is that which has to do with rural public health and sanitation, and its adequate development throughout the state.

In general, it may be said that while there has been a gradual decline in the death rate in the cities, the death rate in country communities has remained fairly stationary. Furthermore, statistics seem to indicate that, of the men examined for military service, those from several states having a large urban population have shown a smaller percentage of rejections on account of physical defects than those from many rural sections. The reasons for this state of affairs are not entirely clear, but it would seem that one of the chief factors is the difference of public health organization and administration in the city from that of the country. The cities, especially those of large population, long ago realized the necessity for a businesslike organization to prevent disease and to conserve health; the employment of a full-time health authority with necessary assistants to formulate and administer laws and regulations for the protection of the community at large has been the result. City health work has become communal in nature; country health work has remained more or less individualistic.

Through the installation of an adequate sewage system, properly controlled, a city has been able to eradicate most of the diseases spread by discharges from the intestinal and urinary tracts; by the protection of its water supply, or by the filtration and chemical purification of a polluted supply, thousands or millions of inhabitants have been protected against water-borne diseases; by modern dairy and milk inspection, diseases spread through milk have largely disappeared; by suitable laws, properly enforced, specific prophylactic measures have been carried out, and various communicable diseases controlled by isolation and disinfection; by provision for the education of the public, school children and adults have been taught personal hygiene.

On the other hand, the individual, or at most, the family, has remained the unit in health matters in rural districts. The old well is usually looked upon as a suitable source of water supply for the farmer whose father, grandfather and great-grandfather may have used it, in spite of its pollution with intestinal bacteria; the open privy has been tolerated because of a lack of information regarding its dangers and for want of a proper substitute; the farmer himself has acted as his own dairy and milk inspector, with disastrous results in many instances; the country school child has remained in ignorance of many laws regarding personal hygiene and the value of specific prophylactic measures; the farm home has remained one of the poorest ventilated places in the world because of lack of adequate heating plants to insure comfort against cold, fresh air in the winter.

How may we do away with these adverse conditions existing in rural districts? By bringing together all of these individual or family units and placing them under the control of a community health authority.

It must be admitted that the states already mentioned have done a large amount of good work in building up their health organizations in rural districts; but in the majority of states much remains to be done. In certain Southern and Western states, in which the county is the chief political unit, the county health organization has been the agency to cooperate with state boards or departments of health in the development of rural hygiene and sanitation. In the Northern and Eastern states, the town or so-called local board of health has been the organization to carry on rural health work, in conjunction with the state department. Because of the great gap previously existing between the state department of health and the town board of health, Massachusetts, New York and Maine, and one or two other states, have wisely provided for the dividing of their respective states into health districts in charge of full-time district health officers, under the supervision of the state department of health. Probably the chief function or duty of a district health officer or sanitary supervisor is to act as a connecting link between the state department and the local town board of health or health officer; and as such his work as an adviser in matters pertaining to rural hygiene cannot be overestimated.

The whole question of rural health work resolves itself into one of demand and supply. When the rural community itself demands an efficient local health organization, and is willing to pay for it, then the supply will be forthcoming. The cities have well organized health boards because the population in the cities has demanded it; but even such a demand in large cities has been based absolutely on the education of the people regarding the value of such work. Legislation not backed up by popular opinion is difficult to initiate and even more difficult to enforce. The federal government, or the state, cannot successfully force even an efficient local health organization on any rural district or small town. The demand or invitation must come from within the small unit. Therefore, the whole problem of public health administration in rural districts comes down to a question of public health education in rural districts, and the greatest function of a state department of health should be one of education.

The New York State Department of Health, under the guidance of the late state health commissioner, Dr. Hermann M. Biggs, has done most excellent work in carrying on such a campaign of education, to the end that permissive legislation has been passed making it possible for an entire county to constitute itself as a general health district, and to appoint a board of health which has the power to appoint a full-time trained health officer for such a county unit. Cattaraugus County is the first county in New York State to constitute itself a general health district and to employ a district health officer for the county.

In addition to carrying on such educational work, state health authorities may have other important functions and fields of activity, such as: (1) investigation and research of various kinds; (2) epidemiologic and laboratory diagnostic service; (3) standardization of methods and forms; (4) fixing of professional standards for the qualifications of health officers; (5) supervision of schools or courses of instruction for health officers; (6) popular publicity work; (7) the control of communicable diseases or nuisances affecting more than one community or district; (8) the recording of vital statistics; (9) the inspection and control of foods and drugs; (10) the examination and control of public water supplies and sewage disposal plants; (11) supervision over the manufacture of antitoxins and vaccines; (12) supervision over hospitals and sanatoriums for tuberculosis; (13) supervision over maternity, infancy and child hygiene work, and (14) supervision over public health nursing service.

4. *The Federal Health Authorities.*—Authority for the administration of federal health work is divided among numerous bureaus and departments of the federal government, such as: (1) the Bureau of the Public Health Service (including the Hygienic Laboratory) in the Treasury Department; (2) the Bureaus of Chemistry and Animal Industry in the Department of Agriculture; (3) the Bureau of the Census (including the Division of Vital Statistics) in the Department of Commerce, and, (4) the Children's Bureau in the Department of Labor.

Other phases of public health work are at times covered by other federal departments, including the medical departments of the army and navy.

The chief functions of the federal health agencies are of a general advisory nature, including a vast amount of investigation. Executive functions have to do only with interstate and international problems, such as: (1) federal and maritime quarantine; (2) supervision over serums, vaccines, foods, drugs and other materials passing from one state to another; (3) supervision over sanitary matters pertaining to interstate transportation on trains and boats; (4) medical examination of immigrants, and (5) administration of the federal pure food laws.

In addition to the public health officers (local, county, state and federal) mentioned above, are numerous officers of voluntary or unofficial health organizations throughout the United States. These agencies are of great value in the promotion of health activities, and are helpful allies to all public officials. One of the important functions of health officers is an active cooperation with all such voluntary organizations.

THE PRIVATE PRACTITIONER

As indicated previously, the most essential requirement for the ultimate success of public health administration, local, state and federal, is a sympathetic cooperation between the private practitioners of medicine and surgery and the public health authorities. It may be stated without much fear of contradiction that the private practitioner of medicine is potentially the most important unit in public health work. On him at present largely rests the success or failure of such work. In the warfare against disease and premature death, the private practitioner has the function and field of activity analogous to those of the infantry on the firing line or in the trench. While much may be said in favor of the thesis that public health service is not a medical monopoly, it must be admitted that it would be more difficult to carry on successful public health work without the physician than without the other specialists who make up the public health profession. Especially is this true when we consider the "new public health," which takes account chiefly of the individual and his personal relation to the community.

If the private practitioner has failed in the past to take his proper place and to assume his true function in preventive medicine, it is because of the fact that he has thought too much of his individual rights and prerogatives and too little of his obligations and responsibilities to the public.

Without attempting to go into detail as to the functions or duties of the private practitioner in relation to public health, it may be stated that his chief obligations are:

1. Legal obligations; including: (*a*) The prompt and accurate reporting of births, (*b*) The prompt and accurate reporting of deaths, (*c*) The prompt and accurate reporting of all diseases required to be reported. 2. Professional or moral obligations, including: (*a*) Early and accurate diagnosis, (*b*) Prompt and efficient treatment, (*c*) Education of his patient as to the patient's future needs, and as to the patient's own relation to the health of the community, (*d*) Cooperation with the constituted health authorities.

In many instances, private practitioners have been on the "black list" of health officers because they have failed too frequently in their legal responsibilities. To the shame of the medical profession it may be said that far too frequently its members are haled into court for neglect of such manifestly important duties. Moreover, many private practitioners fail in fulfilling their moral obligations when they go no further than to make a diagnosis and to outline a course of treatment, and forget the necessary education of their patient on matters pertaining to personal and community hygiene.

On the other hand, the private practitioner has certain rights which must be carefully considered. First, he has a right to demand that the health officer with whom he is associated shall be scientifically trained and not a mere politician. If the health officer has not a medical degree, he should at least have a degree or certificate in public health. Although the holding of a medical degree does not fully qualify a person for the position of health officer, the public still is prone to demand a physician as health officer. While the ideal training for a health officer is one that combines a medical and a public health degree, it may be that in the future more and more nonmedical, technically trained sanitarians will be employed, at least in the subordinate positions. The practitioner, as well as the public at large, has a right to require that even the medical health officer shall have had some training in preventive medicine—at least a short course. Let it be hoped that we shall never return to the custom of employing untrained laymen for the important position of health officer.

Second, the private practitioner has the right to ask (as he is asking) the question, "What is to become of medical practice?" and he is equally entitled to a reasonable answer. In the last analysis, this answer must and will come from the public. If the public is perfectly satisfied with present-day methods of private medical practice and is certain that it is receiving the fullest possible benefit therefrom, both from curative and preventive standpoints, private medical practice will continue as it has for many generations past. If, on the other hand, the public is not satisfied that present methods of medical practice are adequate for present and future needs in the conservation of health and the prevention and cure of disease, then old systems and methods of practice must go and be replaced by others.

In the formation of public opinion as to the best methods of future medical practice, the private practitioners have as one of their chief functions and fields of activity the molding of such opinion. In other words, the practitioners must take the leadership in developing an adequate program to meet the demands of an advanced age, and of modern conditions. As some one has said, "The family physician must become more and more the family health adviser."

What is needed is not "state medicine," but organized medicine; medicine which is organized in such a way that while it remains largely in the hands of private practitioners, it will reach rich and poor, city folk and country folk, children and adults, not only after disease has gained a foothold, but before disease has become apparent, and while the individual [illegible] well and strong. The practitioner think more in terms of physiology and less in terms of pathology. In the medical schools of the past and present, the departments of pathology have been and still are the outstanding and most popular departments, while those of preventive medicine have had to fight for existence. In the medical schools of the future, the departments of pathology must naturally fade into insignificance compared to the growing departments of physiology, hygiene and preventive medicine. Let the curriculum makers give less time to the "dead house" and cirrhotic livers and more time to the houses of the living and the principles of hygiene.

As defined by one of the present-day leaders in personal and community hygiene:

> Public health is the science and art of preventing disease, prolonging life and promoting physical health and efficiency through the organized community efforts for the sanitation of environment, the control of community infections, the education of individuals in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health.

The private practitioner and the health officer must become intimately associated in working out such a forward-looking program for the prevention of disease and the conservation of health. While their functions and fields of activities differ in some minor respects, in a large sense their obligations and responsibilities are one.

Exchange National Bank Building.

THE FACTOR OF DILUTION IN GASTRIC ANALYSIS *

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The great variety of "acidity curves" as obtained by the fractional method of gastric analysis, and the different acid concentrations as determined by the single aspiration method, have been interpreted mainly in the light of secretory variations. The factor of unknown dilution of the acid by the commonly used test meal has been ignored.

Table 1.—*Findings in Group B, Ten Medical Students Without Gastro-Intestinal Symptoms* *

Subject	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
1. M. F.	42	28	48
2. R. E.	44	30	53
3. C. D.	36	27	42
4. E. G.	40	37	61
5. H. F.	52	32	66
6. O. E.	60	32	80
7. B. F. F.	42	30	51
8. M. D.	52	36	75
9. J. D.	58	37	88
10. B. F.	45	26	47
Average	47	31	59

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" of the gastric contents one-half hour after a test meal, consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein.

In both the single aspiration and the fractional methods of gastric analysis, it is customary to give as part of the test meal (Ewald, Dock and Boas' oatmeal gruel) from 150 to 500 c.c. of fluid on the fasting stomach or after the removal of the fasting contents.[1] In the single aspiration method, the gastric contents are removed at forty-five minutes or one hour after the test meal, and the acidity is determined. In the fractional method, samples (from 6 to 15 c.c.) of gastric contents are taken at fifteen minute intervals for a definite period, usually two hours or until the stomach is empty. The acidity of these successive fifteen minute samples is determined, and from it the so-called "secretory curve" is charted. It is obvious that until the fluid taken with the test meal has left the stomach, the dilution of the gastric juice by the fluid of the test meal is a factor in determining the acid concentration of a given sample. This dilution is dependent on several factors, namely: (1) rate of secretion of the gastric juice; (2) the emptying rate during the examination of the particular stomach for its fluid contents; (3) the amount of fluid taken with the test meal, and (4) other diluting factors, as saliva, mucus and duodenal contents.

Table 2.—*Findings in Group C, Ten Medical Students Without Gastro-Intestinal Symptoms* *

Subject	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
11. R. F. L.	44	49	87
12. F. R.	38	50	81
13. L. K. F.	44	40	71
14. M. K.	34	43	65
15. Hen.	36	34	53
16. J. G. M.	40	32	53
17. Lit.	22	49	62
18. W. M. J.	Trace	80	80
19. M. G. H.	28	22	31
20. V. T. K.	34	62	94
Average	32	46	67

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" of the gastric contents one hour after a test meal consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein.

In this work it was the purpose to establish the importance of dilution of the gastric juice by the fluid of the test meals, both in determining the "height of acidity" and the character of the so-called "secretory curve" as obtained by fractional analysis, and in determining "gastric acidity" by the single aspiration method.

PROCEDURE

In the subjects without gastro-intestinal symptoms (fifty-one medical students) the class, having undergone a fast of fourteen hours, was divided into five groups. Group A (twelve) had the fasting contents of the stomach removed. The remaining groups B (eleven), C (ten), D (ten) and E (eight) were given a test meal consisting of two pieces of zwieback (approximately 20 gm.) and 400 c.c. of distilled water containing exactly 1 c.c. of a solution of phenolsulphonephthalein[2] (1 c.c. = 0.006 gm. of substance). The gastric contents of Group B were removed at one-half hour, of group C at one hour, of group D at one and one-half hours, and of group E at two hours after the meal had been finished. In the patients with digestive symptoms (sixty-seven), the majority of whom were from the gastro-intestinal division of the medical clinic of the Washington University dispensary, both the single aspiration and the fractional methods were employed. The Rehfuss type of soft stomach tube was used in all experiments. The subjects on whom the single aspiration method was employed were given a test meal consisting of one shredded wheat biscuit (approximately 20 gm.) and 400 c.c. of tap water containing 1 c.c. of a solution of phenolsulphonephthalein. The gastric contents were aspirated at forty-five minutes after the meal had been finished. In the fractional method, from 10 to 15 c.c. of the gastric chyme was removed at fifteen minute intervals by the syringe method, care being taken to empty the tube after each aspiration by introducing a syringeful of air through the tube. Samples containing excess of bile and mucus were not used.

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* Read before the Washington University Medical Society, April 9, 1923.

* From the Departments of Medicine and Biological Chemistry of Washington University Medical School.

[1] Knapp, V.: Standardization of Test Meals, New York M. J. **115:** 695-698 (June 7) 1922.

[2] This solution of phenolsulphonephthalein, as prepared by Hynson, Westcott & Dunning, was suggested for use in these experiments by Dr. A. P. Briggs.

Determining the Total Acidity of the Gastric Contents.—The total acidity was determined by titrating against tenth normal sodium hydroxid, phenolsulphonephthalein being used as an indicator if the dye was present in sufficient concentration; otherwise a few drops of phenolphthalein were used (there is a very slight difference of the p_H at which the color change occurs with the two indicators, but no appreciable difference in the total acidity titration). Of the subjects without gastro-intestinal symptoms, each group was in charge of an instructor of the department of biologic chemistry, who personally made the titration for total acidity. The acidity was expressed in terms of the number of cubic centimeters of tenth normal sodium hydroxid required to neutralize 100 c.c. of gastric contents.

Estimating the Dilution of a Given Sample by the Fluid Taken with the Test Meal: "Corrected Total Acidity."—It was assumed that phenolsulphonephthalein remains in solution while in the stomach, and is progressively carried with the fluid of the test meal through the pylorus into the duodenum. It is the opinion of physiologists that practically no water is absorbed from the stomach.[3] Therefore the dye concentration of a given sample of the gastric contents is indirectly an index to the dilution of the gastric juice by the fluid taken with the test meal. The dye concentration was determined in the following manner: Two cubic centimeters of a filtrate of the sample examined was placed in a cup of the Hellige colorimeter and made alkaline by the addition of 2 or 3 drops of 40 per cent. sodium hydroxid, and the color compared against a standard solution of phenolsulphonephthalein of the original concentration taken with the test meal (400 c.c. of water containing 1 c.c. of a solution of phenolsulphonephthalein and 3 drops of 40 per cent. sodium hydroxid). The colorimetric reading of the dye concentration of the sample was interpreted to represent the approximate percentage of dilution of the gastric juice by the fluid of the test meal still remaining in the stomach. By corrected total acidity is meant the acidity of the gastric contents, at a given phase of digestion, after the removal of the factor of dilution by the fluid of the test meal. For example (forty-five minute specimen, Table 5), the dye concentration of the sample of gastric contents was 44 per cent. of the dye concentration of the fluid taken with the test meal. It is obvious that, in 100 c.c. of gastric contents, 44 c.c. consisted of water taken with the test meal and only 56 c.c. was directly related to gastric secretion; and as 58 was the total acidity of the diluted sample as ordinarily obtained, then the corrected total acidity would be 103:

$$\frac{58\ (\text{acidity as ordinarily obtained}) \times 100}{100 - 44\ (\text{percentage of dilution})} = 103$$

Table 3.—*Findings in Group D, Ten Medical Students Without Gastro-Intestinal Symptoms**

	Subject	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
21.	W. W. R.	14	35	41
22.	Sie.	18	25	30
23.	J. McC.	24	60	79
24.	C. A. S.	0	25	25
25.	R. M. M.	12	70	80
26.	H. P. R.	42	46	79
27.	W. R. P.	24	66	87
28.	E. P. S.	Trace	38	38
29.	Sap.	10	49	54
30.	N. W. S.	36	4	6
	Average	18	42	52

* Dye concentration, the total acidity as ordinarily obtained and the "corrected total acidity" of the gastric contents one and one-half hours after a test meal consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein in ten medical students without gastro-intestinal symptoms.

Table 4.—*Findings in Group E, Eight Medical Students Without Gastro-Intestinal Symptoms**

	Subject	Starch	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
31.	W. G. W.	Present	34	19	29
32.	F. S.	0	Trace	7	7
33.	R. G. V.	Present	Trace	18	18
34.	G. M. B.	Present	Trace	54	54
35.	Ste.	Present	0	51	51
36.	K. Z.	Present	0	34	34
37.	G. D. W.	Present	24	47	62
38.	E. H. T.	Present	Trace	40	40
	Average		7	34	37

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" of the gastric contents two hours after a test meal consising of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein.

RESULTS OF EXPERIMENTS

Subjects Without Gastro-Intestinal Symptoms.—From a study of Tables 1, 2, 3 and 4, it is possible to ascertain the variable relation of the fluid taken with the test meal to the remaining gastric contents at half, one, one and one-half and two hours after a test meal consisting of two pieces of zwieback and 400 c.c. of distilled water. At half hour (Table 1), the dye concentration, which may be interpreted to mean percentage dilution of the sample by the water, varied from 36 to 60 per cent., with an average dilution of 47 per cent., and the total acidity as ordinarily obtained varied from 26 to 37, with an average of 31, while the corrected total acidity varied from 42 to 88, with an average of 59. The minimum variation between the total acidity and the corrected total acidity in any one individual was 15, with a maximum variation of fifty-one degrees.

At one hour (Table 2) the dye concentration of the gastric contents varied from a trace to 44 per cent., with an average of 32 per cent. The total acidity, as ordinarily obtained, varied from 22 to 80, with an average of 46. The corrected total acidity for this group varied from 31 to 94, with an average acidity of 67. The minimum variation between the total acidity, as usually obtained, and the corrected total acidity in the same individual was 0, while the maximum variation in any one individual was 38.

At one and one-half hours (Table 3) the dye concentration of the gastric contents varied from 0 to 42 per cent., with an average of 18 per cent. The total acidity, as ordinarily obtained, varied from 4 to 70, with an average of 42. The corrected total acidity varied from 6 to 87, with an average of 52. The minimum variation between the total acidity, as ordinarily obtained, and the corrected total acidity was 0, and the maximum 33.

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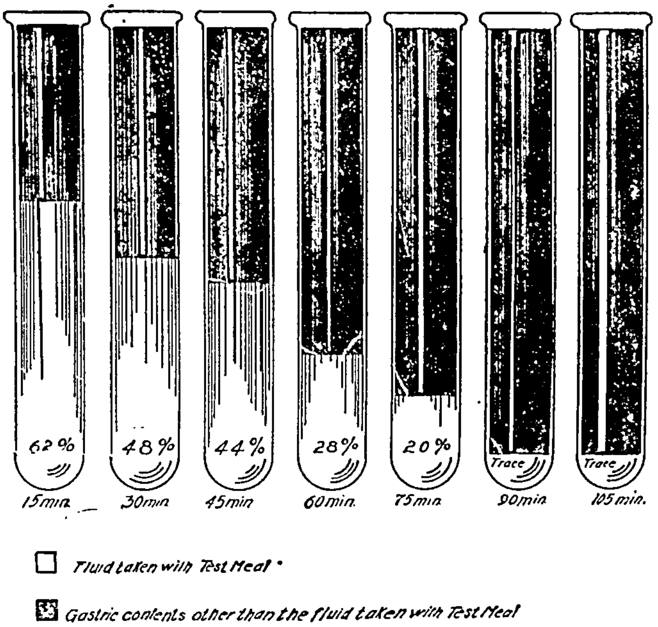
[3] Howell's Text Book of Physiology, Ed. 7, p. 791.

At two hours (Table 4) the dye concentration of the gastric contents varied from 0 to 34 per cent., with an average of 7 per cent. The total acidity, as ordinarily obtained, varied from 7 to 54, with an average of 34. The corrected total acidity varied from 7 to 62, with an average of 37. The minimum variation between the total acidity, as ordinarily obtained, and the corrected total acidity in any one individual was 0; the maximum was 15.


62%
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45min
60min
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90min
105min
☐ Fluid taken with Test Meal *
▨ Gastric contents other than the fluid taken with Test Meal

Fig. 1 (from Table 5).—Relation of the fluid (400 c.c.) taken with the test meal to the remaining gastric contents in successive fifteen minute samples obtained by the fractional method of gastric analysis in a case of duodenal ulcer with pyloric obstruction.

Subjects with Gastro-Intestinal Symptoms.—From a study of Tables 5 and 6, and Figures 1 and 2, it is possible to ascertain the variable relation of the fluid taken with the test meal to the remaining gastric contents, and the influence of this dilution on the acid concentration of successive fifteen minute samples as obtained by fractional analysis.

Table 5.—*Findings by Rehfuss Fractional Method in a Case of Duodenal Ulcer with Pyloric Obstruction* *

Time, Minutes	Amount Recovered, C.c.	Starch	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
15	14	Plus	62	36	99
30	18	Plus	48	45	86
45	15	Plus	44	58	103
60	14	Plus	28	63	88
75	16	Plus	20	78	97
90	14	Plus	Trace	100	100
105	15	Plus	Trace	104	104

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" in successive fifteen minute samples obtained by fractional analysis after a test meal consisting of 400 c.c. of oatmeal gruel containing 1 c.c. of a solution of phenolsulphonephthalein.

In a case of duodenal ulcer with obstruction (Table 5, Figs. 1 and 2), 62 per cent. of the first fifteen minute sample was fluid taken with the test meal, only 38 per cent. being directly related to gastric secretion. Figure 2 shows diagrammatically the influence of this dilution on the "acidity curve" as ordinarily obtained by fractional analysis.

Table 6 and Figure 3 show the relative proportion of the fluid taken with the test meal to the remaining gastric contents in successive fifteen minute samples of gastric chyme, in a case of duodenal ulcer with hypermotility. Thirty-eight per cent. of the first fifteen minute sample was fluid taken with the test meal, while at forty-five minutes, owing to the rapid emptying rate, the fluid taken with the test meal had completely disappeared from the stomach. Figure 4 shows diagrammatically the influence of this rapid emptying rate and diminished dilution on the character of the "acidity curve" as obtained by fractional analysis.

Table 6.—*Findings by Rehfuss Fractional Method in a Case of Duodenal Ulcer with Hypermotility of the Stomach* *

Time, Minutes	Amount Recovered, C.c.	Starch	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
15	12	Plus	38	30	48
30	13	Plus	20	70	87
45	16	Plus	Trace	80	80
60	12	0	0	88	88

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" in successive fifteen minute samples obtained by fractional analysis after a test meal consisting of 400 c.c. of oatmeal gruel containing 1 c.c. of a solution of phenolsulphonephthalein.

Figures 5 and 6 show diagrammatically the variable dilution of the gastric contents by the fluid taken with the test meal, and its influence on the acid concentration at forty-five minutes after a test meal (400 c.c. of water, 1 c.c. of phenolsulphonephthalein and one shredded wheat biscuit) as obtained by the single aspiration method. In sixty-seven miscellaneous cases, the maximum dilution was 62 per cent., and the minimum dilution was 0, with an average dilution of 35 per cent. The average total acidity as ordinarily obtained was 51, and the average corrected total acidity, 79.

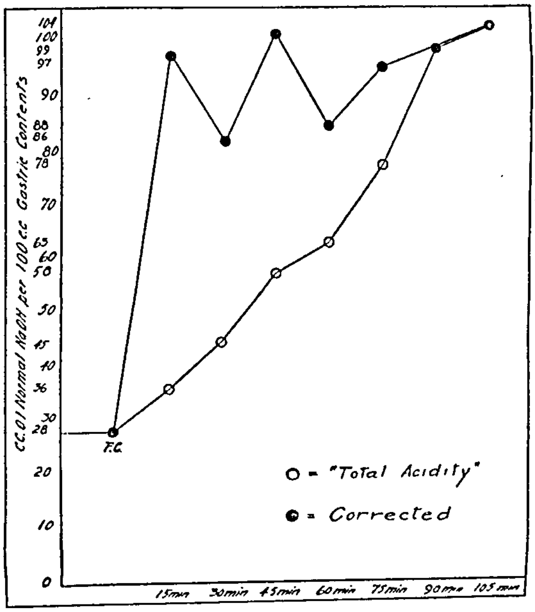

Fig. 2 (from Table 5).—The "total acidity" as ordinarily obtained by fractional analysis and the "corrected total acidity" after the removal of the factor of dilution by the fluid of the test meal. It is obvious that in this instance the character of the "acidity curve" as ordinarily obtained is largely dependent on the emptying rate of this particular stomach for fluid.

COMMENT

In this work it has been shown that when fluids form a part of the test meal given on a presumably empty stomach, the dilution of the gastric juice by the fluid taken with the test meal is a factor of considerable importance in determining the "height of acidity" at a given phase of digestion, and the character of the "acidity curve" as obtained by fractional analysis. This factor of variable dilution may also be important in determining the "acidity" as obtained in the single aspiration method.

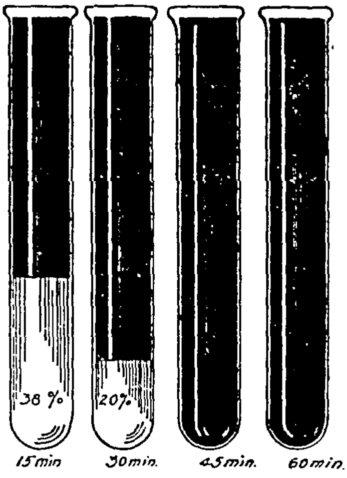

Fig. 3 (from Table 6).—Relation of the fluid of the test meal (400 c.c.) to the remaining gastric contents in successive fifteen minute samples, as obtained by fractional analysis in a case of duodenal ulcer with hypermotility of the stomach.

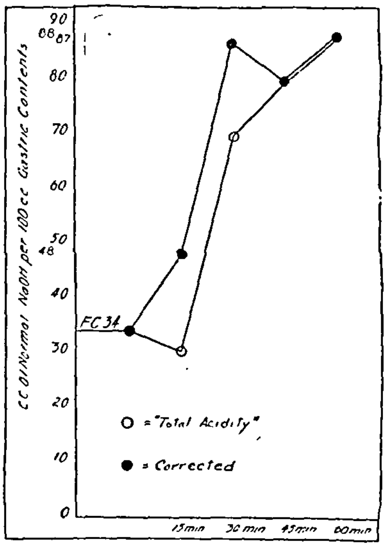

Fig. 4 (from Table 6).—The "total acidity" as ordinarily obtained by fractional analysis, and the "corrected total acidity" after the removal of the factor of dilution by the fluid test meal. The relation between the rapid evacuation of the fluid from the stomach and the character of the "acidity curve" should be noticed particularly.

Bennett and Ryle,[4] in discussing the different factors producing the "curves of gastric acidity" as obtained by the fractional method of gastric analysis, mention the secretion of hydrochloric acid as the most important acid factor, while saliva, regurgitation of duodenal contents, and the secretion of the pyloric mucous membrane are, according to these authors, the most important alkaline factors. They further state that "a recognition of these principles gives the explanation of the phases usually seen in the chart obtained from a fractional gastric analysis." Although Bennett and Ryle used a fluid test meal (500 c.c. of oatmeal gruel), given on a presumably empty stomach, and obtained 10 c.c. samples of the gastric contents at fifteen minute intervals, they made no mention of the factor of variable dilution of the acid in the successive specimens by the fluid test meal, and also apparently ignored the factor of variations in acid concentration of different portions of gastric chyme.[5]

Carlson,[6] in discussing gastric secretion, states that "actual hyperacidity in the sense of a gastric juice of greater than normal acidity (0.45-60 per cent.) has not been demonstrated in any disease and probably does not exist." This should not be confused with "clinical hyperacidity," which is a relative term. From clinical experience we have learned to expect, using the Ewald test meal, that the total acidity of the chyme at forty-five minutes normally varies from 30 to 60 in terms of tenth normal sodium hydroxid, which is probably about half the acidity of the gastric juice as secreted. However, this acidity as obtained by gastric analysis is not generally recognized to be the resultant of several factors, acid, alkali and especially dilution, and so far as I am aware no successful method has been formulated for determining which of these factors is at fault in a given case. In certain abnormal conditions, especially in nonmalignant lesions about the pylorus, as duodenal ulcer, a relative hyperacidity, as determined by clinical methods, is frequently found and attributed to hypersecretion. The importance of such a discrimination as mentioned above is well illustrated in Table 2, in the case of W. M. J., who had a total acidity of 80 (hyperacidity) at one hour, which can be explained by the rapid evacuation of the diluting fluid from the stomach. Other students at the same period with a so-called normal acidity as usually determined had a higher acidity after the removal of the factor of dilution. It is especially interesting to note that in a group of sixty-seven miscellaneous cases in which there were gastro-intestinal symptoms, the single aspiration method being used, the factor of dilution, which varied from 0 to 62 per cent., with an average dilution of 35 per cent. at forty-five minutes, was in itself sufficient to change the average total acidity of 51 (considered normal) as usually obtained to 79 (relative hyperacidity). On the other hand, in the normal cases none of the corrected acidities were higher than 100, while figures as high as 136 corrected total acidity were repeatedly found in abnormal conditions; therefore the factor of dilution is apparently only one of the factors that may be disturbed in a given case. I would emphasize that gastric hypersecretion and gastric hyperacidity, s determ

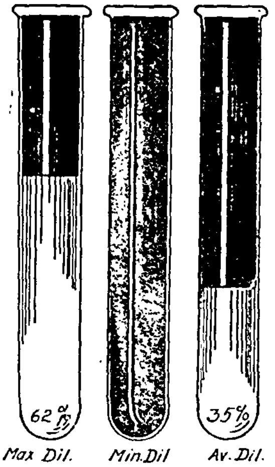

Fig. 5.—Maximum, minimum and average dilution at forty-five minutes after a test meal (one shredded wheat biscuit, and 400 c.c. of water containing 1 c.c. of a solution of phenolsulphonephthalein) of the gastric contents by the fluid taken with the test meal, in a group of sixty-seven miscellaneous cases in which there were gastro-intestinal symptoms.

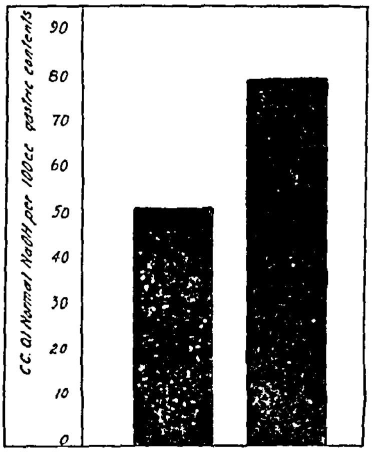

Fig. 6.—The left hand column shows the average total acidity as ordinarily obtained, and the right hand column shows the corrected total acidity of the gastric contents, forty-five minutes after a test meal (one shredded wheat biscuit, and 400 c.c. of water containing 1 c.c. of a solution of phenolsulphonephthalein), in sixty-seven miscellaneous cases in which there wherr gastro-intestinal symptoms.

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[4] Bennett, T. I., and Ryle, J. A.: Studies in Gastric Secretion and Study of Normal Gastric Function, Based upon Investigation of One Hundred Healthy Men by Means of the Fractional Method of Gastric Analysis, Guy's Hosp. Rep. 71: 286-318 (July) 1921.

[5] Gorham, F. D.: Variations in Acid Concentration in Different Portions of the Gastric Chyme and Its Relation to Clinical Methods of Gastric Analysis, Arch. Int. Med. 28: 434-440 (April) 1921.

[6] Carlson, A. J.: Physiol. Rev. 3: 32 (Feb. 6) 1923.

by clinical methods, are not always synonymous, and that the "acidity curve," as ordinarily obtained by fractional analysis, is not necessarily a "secretory curve." In the future it will be necessary to measure and correlate more accurately these several factors, acid, alkali and dilution, in order to speak quantitatively of gastric acidity.

CONCLUSIONS

1. The emptying rate of the stomach for fluids is variable in different individuals without gastro-intestinal symptoms.
2. When 400 c.c. of fluid is given as part of a test meal, it may act as a diluent of the gastric juice for more than two hours.
3. In fractional gastric analysis, variations in dilution of the successive fifteen minute samples by the fluid of the test meal are of fundamental importance in determining the "height of acidity" and the character of the so-called "secretory curve."
4. The variable dilution of the gastric juice by the fluid taken with the test meal is a factor of importance in determining the "acidity" as ordinarily obtained in the single aspiration or one hour method of gastric analysis.

THE TREATMENT OF NEUROSYPHILIS [*]

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In considering the possibility of treatment of syphilis of the central nervous system, there are certain factors that must be given particular attention. Among these may be mentioned the potency of our antisyphilitic drugs, the varying virulence of the spirochetes in each case, the peculiarities of the central nervous system, whereby it is more or less separated from the viscera, the localization of the spirochetes within the central nervous system, and the pathologic processes produced.

It must be admitted that our present-day antisyphilitic remedies, especially arsphenamin, mercury and the iodids, are far from ideally satisfactory in the treatment of syphilis, no matter what the stage of the disease. Even in the early primary stage of syphilis, it takes quite a large amount of treatment with these drugs to produce what is considered a cure, and there is a certain amount of evidence that leads one to doubt whether an actual cure is ever obtained. At any rate, it often takes a number of months to obtain consistently negative serologic findings.

When treatment is begun somewhat later, that is, in the secondary period, the time necessary to effect reasonably satisfactory results is greatly lengthened. In the later stages, even when there are no evidences of active lesions, it may take months or years of treatment to produce a consistently negative Wassermann reaction in the blood. This is true of cases receiving early treatment that has not been entirely effective, as well as of cases coming under treatment for the first time when in the tertiary stages. Indeed, there are many cases which are said to be "Wassermann fast," meaning thereby that it is apparently impossible to produce a negative Wassermann reaction even after years of vigorous treatment. In patients having evidence of definite cardiovascular lesions, it is doubtful whether any one would expect to get a complete sterilization of the spirochetes in the body, no matter what the type of treatment given.

In reviewing the life history of persons affected with syphilis, it seems to me that patients may be divided into three groups according to their reaction to the disease. There is one group of patients who, even without treatment, apparently suffer no particularly bad results from the spirochetal infection. They go through a long life with practically no symptoms. It is by no means infrequent to see patients 60 years of age and older who give a history of a syphilitic infection thirty or forty years before, whose blood Wassermann reaction is positive and who, despite the fact that no antisyphilitic treatment was ever given them, are in vigorous health and show no definite syphilitic manifestations. On the other hand, there is a group of patients who from the time they obtain their infection suffer from one variety of lesion after another, and for whom antisyphilitic treatment does not give good results. These patients, despite what is done for them, seem doomed from the moment they have received their infection. There is a third group of patients who, without treatment, suffer from syphilitic manifestations, but for whom antisyphilitic therapy produces most satisfactory results.

How large each of these groups may be is a matter of conjecture. Whether the difference in results is due to the difference in type or virulence of the infecting organism, or whether it is the effect of certain immunity responses on the part of the patient, or a combination of these factors, or a matter of accidental localization of the lesions, are further questions for which we have no adequate answers.

However, with these three groups in mind, we have a working hypothesis which allows us to understand that some patients will react favorably to a very small amount of treatment. These are patients who approach Group 1 in their reaction to the disease. There are other patients on whom fairly satisfactory results are obtained only after a great deal of treatment. This group approaches the second, or recalcitrant, type.

SEPARATION OF CENTRAL NERVOUS SYSTEM

If this is a fair presentation of the problem of systemic syphilis, it would likewise hold for neurosyphilis. Here, in addition, there are certain factors dependent on the anatomy and physiology of the nervous system which need particular consideration. The central nervous system differs from the other systems of the body in that it seems to be separated off. Substances circulating in the blood system rarely enter into the central nervous structure. This may be shown most strikingly in cases of jaundice. In severe cases of jaundice, practically every tissue of the body with the exception of the central nervous system may be colored by the icteric pigments. This is a common phenomenon. Thus, in a case of acute yellow atrophy in which I recently performed necropsy, there was a marked yellow discoloration of all the tissues and fluids, including the pericardial, pleural and peritoneal fluids, but the cerebrospinal fluid and the tissues of the nervous system were entirely free from any evidence of this yellow discoloration. In other words, there was an adequate and efficient filter which kept the pigment from the nervous tissue.

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[*] Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

What is true of the icteric pigment is true, to a great extent, of various drugs. Most drugs have only a slight power of penetration into the central nervous system. Unfortunately, antisyphilitic drugs, such as arsenic, mercury and bismuth, are all heavy metals with large molecules that have great difficulty in making their way into the nervous tissue. While there is evidence that they do reach this tissue in many cases, it is nevertheless true that they penetrate only in very small amounts, as compared with their presence in the rest of the body. This definite walling off or separation of the central nervous system from the rest of the body is well illustrated in cases of syphilis. For instance, in many cases of syphilis in which there is a fairly generalized infection involving a large part of the bodily structure, the central nervous system may practically escape. The Wassermann reaction is frequently positive in the blood and negative in the spinal fluid. On the other hand, in many cases of syphilis of the nervous system, there is little evidence of any visceral syphilis, while the spinal fluid Wassermann reaction may be strongly positive, and the blood Wassermann reaction may be negative. This is the serologic status in approximately 40 per cent. of the cases of tabes and meningovascular syphilis.

In the stage of generalization of the infection, the central nervous system is involved in a high percentage of cases. As a rule, the immunity reactions of the body and the central nervous system itself are sufficient to sterilize this process, and no subsequent symptoms or evidence of disease results. There are many cases, however, in which the process continues in the central nervous system, producing pathologic lesions and abnormal spinal fluids. In a certain number of cases, this process of pathologic change in the central nervous system goes on despite our usual methods of antisyphilitic treatment. Thus, even though a patient is placed under antisyphilitic treatment during the early primary period of the disease, a positive cerebrospinal fluid may be found some months later, despite continued systemic treatment.[1]

CASE 1.—J. S., a man, in the early twenties, who developed a primary lesion, immediately underwent treatment, receiving six injections of arsphenamin and thirty injections of mercury. Six months after the appearance of the chancre, and while still under treatment, he developed a ptosis of the eyelid. A year later, a hemiplegia developed. Fourteen intravenous injections of arsphenamin were given, but despite this, the spinal fluid was positive.

In cases such as this one, the blood Wassermann reaction may never become positive,[2] or, if it does become positive, it may be made negative by treatment and no bodily symptoms ensue, despite which the cerebrospinal fluid remains positive as evidence that an active syphilitic process continues in the central nervous system.

Similarly, in later stages of the disease, antisyphilitic treatment may clear up all evidence of visceral infection without giving the slightest evidence of effect on the nervous system lesions either symptomatically or serologically. Not only is this the case with patients who have evidence of central nervous system involvement at the time treatment is begun, but also patients who are first seen with negative spinal fluids may develop central nervous system involvement with a positive fluid while undergoing systemic treatment.

CASE 2.—In July, 1914, Mr. G. was suffering from pain in the chest, gastric distress, and symptoms which he referred to his heart. The Wassermann reaction in the blood was strongly positive at this time, but the spinal fluid was entirely negative. His general symptoms improved under antisyphilitic treatment consisting of arsphenamin, mercury and iodid. This treatment was continued from July, 1914, to July, 1920. The blood Wassermann reaction remained positive all this time. In July, 1920, because of complaint of severe headache, a lumbar puncture was performed; the fluid showed 220 cells per cubic millimeter, a positive Wassermann reaction, and a very strong gold reaction. At the time treatment was started in 1914, the spinal fluid was negative, but after six years of continuous systemic treatment, the spinal fluid had become positive, and clinical symptoms relating to the nervous system appeared.

It is a common observation that patients are apparently made to have severe central nervous system reactions through the exhibition of antisyphilitic remedies. This is the so-called "neurorelapse." The majority of such neurorelapses are improved by the continuation of general treatment, but there are a few that are not improved.

This line of reasoning leads us to several conclusions:

1. Our antisyphilitic drugs are only relatively satisfactory even for cases of syphilis not of the nervous system.
2. The central nervous system is walled off from the general bodily structure both as regards the spirochete itself and the entrance of drugs from the blood stream into the nervous structure.
3. Cases in which antisyphilitic drugs might be potent if they reached the spirochete receive no benefit from systemic treatment.
4. The central nervous system involvement may be increased rather than favorably influenced by such therapy.

THE CENTRAL NERVOUS SYSTEM

It is necessary to consider more fully the structure of the central nervous system and its reactions to the spirochete before discussing the possibilities of the treatment of neurosyphilis. The central nervous system is surrounded by the meninges, dura and pia-arachnoid, which are nonnervous structures composed of mesodermal tissues, that is, connective tissue, mesothelium and blood vessels. This is a true mesenchymal tissue and reacts to the spirochetes as mesenchymal tissues do in other parts of the body; that is, there is an inflammatory reaction produced, with an infiltration of lymphocytes, and, in some instances, of plasma cells. The brain and cord are true nervous structures consisting of nerve cells and their processes, separated by neuroglia tissue. Degeneration is the only type of reaction possible for the true parenchyma, namely, the nerve cells. This is what occurs when the tissue is invaded by the spirochetes having pathogenic properties. The neuroglia tissue reacts by proliferation.

The pia, which is closely applied to the surface of the brain and cord, dips down into the sulci and sends prolongations into the nervous structure, carrying blood vessels with it. However, it is outside the nervous system; that is, separated from the nervous tissue by a neuroglia membrane. The blood vessels which run through the nervous system are also separated from the nerve tissue by a neuroglia lining. Various sclerotic and endarteritic changes occur, and inflammatory cells, lymphocytes and plasma cells make their way into the coats of the vessels and into the perivascular spaces surrounding the vessels; these very rarely make their way into the nervous structure, but remain for the most part in the perivascular spaces, which are surrounded by the neuroglia envelop.

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[1] Scott, G. O., and Pearson, G. H.: Some Observations on Syphilis of the Central Nervous System, Am. J. Syphilis 4: 201 (April) 1920. Larkin, J. H., and Cornwall, L. H.: Value of Laboratory Diagnosis in Neurosyphilis, Am. J. Syphilis 3: 76 (Jan.) 1919. Gennerich, W.: Syphilis des Zentralnervensystems; ihre Ursachen und Behandlung, Berlin, 1921.

[2] Nicolau: Recherches sur le liquide céphalo-rachidien dans le période primaire de la syphilis, Ann. de dermat. et de syph. 7: 200, 1919.

REACTION TO SPIROCHETE

From the histo-anatomic standpoint, the cases of neurosyphilis may be divided according to the type of tissue invaded and the response that must necessarily follow. Thus, there occurs a simple meningeal reaction in which the spirochete apparently localizes in the meninges. This mesenchymal tissue reacts in an inflammatory manner, becoming infiltrated with white blood cells. This type of reaction may be diffuse, taking in a large part of the meninges of either the cord, brain or both, or the lesion may be quite localized in a very small portion of the meninges, with variations between the very diffuse and very localized types of reaction. Gummatous formation occurs in the meninges. The important point is that such a location may be, and not infrequently is, purely meningeal, not taking in the true nervous structure, although there may be symptoms suggesting nervous tissue involvement due to the pressure of the thickened and inflamed pia. In such a process the prolongation of the pia into the sulci of the nervous system reacts in a similar fashion. This represents the true meningeal syphilis. Very frequently there is a reaction about the blood vessels so that there are vascular changes, in addition to the meningeal involvement. This combination represents a meningovascular syphilis. This type of lesion, namely, the true meningeal or meningovascular, includes the cases which, from the clinical standpoint, are called cerebrospinal, spinal or cerebral syphilis, depending on the localization of the lesion. On the other hand, the spirochete may affect the blood vessels almost exclusively. Lesions of this type produce various forms of vessel sclerosis, leading most frequently to the formation of thrombi, but also to aneurysm and hemorrhage. As a rule, there is considerable perivascular infiltration, but not infrequently the process is largely sclerotic and obliterating, without much inflammatory reaction. When the involvement is almost entirely in the blood vessels of the nervous system, one speaks of a true vascular neurosyphilis.

But the spirochetes may invade the true nervous tissue itself. When this occurs, the response is in the form of degeneration of the parenchyma; that is, the nerve cells or their prolongations are killed. The neuroglia tissue proliferates. This is the essential feature of parenchymatous syphilis, and the clinical forms of this type of reaction include general paresis, tabes dorsalis, muscular atrophy due to death of the anterior horn cells, certain forms of epilepsy, etc. In the case of parenchymatous neurosyphilis, there is usually an associated meningeal and vascular disorder, so that in most cases of paresis and tabes, in addition to the changes in the nerve tissue, there occurs also some meningovascular disorder. This may be considered as a secondary, associated or complicating feature, although it may be responsible for many of the symptoms.

What has been said about the separation of the nervous structure from the soma and the filtration of substances circulating in the blood holds especially for the true nervous structure and, to a lesser degree, for the meningeal and vascular tissue, which, as has been stated, is really extranervous.

POSSIBILITIES OF TREATMENT

The problem of therapy for meningovascular syphilis is therefore essentially different from that of parenchymatous neurosyphilis. Meningovascular neurosyphilis, or, as it is frequently called, cerebrospinal syphilis, has always been recognized as rather favorable for antisyphilitic treatment. In the past, many cases have been found to react quite satisfactorily to mercury and the iodids. On the contrary, the cases of parenchymatous syphilis react quite unsatisfactorily to mercury and the iodids. From this fact arose the idea of parasyphilis, which includes general paralysis and tabes, as these cases were found to be quite recalcitrant to ordinary antisyphilitic treatment. With the introduction of arsphenamin, a more potent antisyphilitic drug, renewed attention was given to the treatment of syphilis of the nervous system, including the so-called parasyphilitic diseases.

The demonstration, by Noguchi and Moore [3] and by many others since,[4] that spirochetes often are present in large numbers in the nervous tissue in general paralysis and also in cases of tabes, has led to more and more attempts to treat all forms of syphilis of the nervous system. Especially important has been the invention of various forms of intrathecal treatments.

Bearing in mind the anatomic differences that exist in cases of neurosyphilis, the cases may be studied according to their response to various forms of therapy.

When one remembers the difficulty of effecting symptomatic and serologic improvement in some cases of dermatologic syphilis, it is to be expected that even more difficulty will be encountered in obtaining results in the treatment of neurosyphilis. Nevertheless, it is true that one may encounter a group of cases of neurosyphilis in which, with a relatively small amount of general treatment, symptomatic improvement and serologic cure results. Mercurial rubs or injections may be quite sufficient to accomplish satisfactory results.

Case 3.—Mr. C. S. was brought into the hospital in a confused psychotic state. The neurologic examination showed dilated pupils, which, however, reacted well. The tendon reflexes were normal. There was considerable tremor and ataxia. The Wassermann reaction was positive in the blood and spinal fluid, and there were 80 cells per cubic millimeter, marked excess of albumin and globulin, and a strong general paralytic gold curve. Twenty injections of mercuric salicylate were sufficient to produce complete clinical remission, and the blood and spinal fluid became negative. The spinal fluid examined five months after the first test gave a negative Wassermann reaction, 4 cells per cubic millimeter; no globulin; normal albumin, and an entirely negative gold curve.

The type of case that responds satisfactorily to this mild treatment is in most instances a mild meningeal inflammation.

Case 4.—Mr. A R., after suffering for a short time with severe frontal headache, suddenly developed a strabismus and ptosis. A history of syphilis acquired thirty years previously was obtained. The patient had hypertension, aortitis and chronic nephritis. The spinal fluid gave a positive reaction, suggesting the meningovascular type of neurosyphilis. With five injections of arsphenamin, the headache entirely disappeared; the strabismus and ptosis, which had been present for several months, cleared up immediately. With very little treatment, the patient has had no recurrence of neurologic symptoms for the last seven years.

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[3] Noguchi and Moore: A Demonstration of Treponema Pallidum in the Brain in Cases of General Paralysis, J. Exper. M. **17**: 232, 1913.

[4] Jahnel F.: Die Spirochäten in Zentralnervensystem bei der Paralyse, Ztschr. f. d. ges. Neurol. u. Psychiatrie **73**: 370, 1921. Forster and Tomasczewski: Nachweis von lebenden Spirochäten in Gehirn von Paralytikern, Deutsch. med. Wchnschr. **39**: 1237, 1913. Wile, U. J.: Experimental Syphilis in Rabbit Produced by the Brain Substance of the Living Paretic, J. Exper. M. **23**: 199 (Feb.) 1916. Hauptmann: Ueber herdartige Spirochäten-Verteilung in der Hirnrinde bei Paralyse, Monatschr. f. Psychiat. u. Neurol. **45**: 59, 165, 1919.

It does not follow, however, that all cases of apparently mild meningeal syphilis are so satisfactorily treated. The important point to bear in mind is that there is a group of cases showing clinical evidence of the involvement of the central nervous system and having characteristic spinal fluid changes which react promptly and satisfactorily to the type of ordinary routine treatment accorded to the simple cases of systemic syphilis.

The majority of cases of neurosyphilis will not react satisfactorily, however, to this mild form of therapy. Having eliminated from consideration those cases in which the patients recover promptly with mild systemic treatment, we find that among the remainder there is a group of cases which, when treated much more intensively but by exactly the same methods, that is, by the administration of mercury, the iodids and arsphenamin intravenously, improve symptomatically and serologically. These cases, no matter what the state of the disease, may develop signs or symptoms of neurosyphilis, and show very little tendency toward improvement when given arsphenamin in doses of approximately 0.3 gm. once a week, assisted by mercury and iodid, but will show relatively prompt improvement if the dose of arsphenamin is increased and the frequency of administration doubled.

CASE 5.—F. C. developed a primary lesion in July, 1915, when 49 years of age. He was treated by an experienced colleague, who gave him a number of injections of mercury, potassium iodid by mouth, and four injections of arsphenamin. Five months after his primary lesion, he developed convulsions and became confused. The blood and spinal fluid Wassermann reactions were both strongly positive; there were 4 cells per cubic millimeter; globulin was 3 plus, albumin 4 plus, and the colloidal gold reaction 5555555310. The patient was then put on more intensive treatment, receiving two injections of arsphenamin a week, the average dose being 0.6 gm. At the end of four weeks, that is, after about eight injections of arsphenamin, the spinal fluid was essentially negative, and he had symptomatically recovered.

The cases that follow this rule are, in the majority of instances, cases of meningovascular syphilis occurring in any stage of the disease, early or late. Some will show very mild symptoms and quite weak spinal fluid changes, whereas others of this group will have very severe symptoms, presenting all the features of grave prognostic significance, and have spinal fluid giving the reactions characteristic of cases of general paralysis. A good many cases of tabes dorsalis will respond quite well to relatively intensive systemic treatment. Often the irritative symptoms, such as excruciating pains, bladder trouble and crises, will disappear quite promptly, and the spinal fluid will return to normal reactions.

CASE 6.—Miss O. I., aged 37, was suffering from severe lancinating pains of eight years' duration. Neurologic examination showed diminished hearing in the left ear, and slight tremor of the hands and tongue; knee jerks and ankle jerks were absent, the gait was ataxic, and there was a marked Romberg sign. The pupils were unequal, both reacting but little to light. The spinal fluid and blood were positive. The clinical picture of tabes was complete. After a few injections of arsphenamin, given at weekly intervals, the patient became free from pain and her gait improved a great deal. Improvement has continued over a period of four years, during which time she has had no pain and is able to carry on her work. The very marked symptomatic improvement was obtained solely by the administration, intravenously, of arsphenamin in small doses given at intervals.

Occasionally, cases having all the clinical and laboratory symptoms of general paralysis may likewise respond in a most surprising manner, leading to a complete and long-continued remission, with essentially negative serologic findings.

CASE 7.—In September, 1920, Mr. N. H. developed a marked psychosis which, from the clinical and serologic point of view, was diagnosed as general paralysis. The Wassermann reaction was positive in the blood and strongly positive in the spinal fluid. There were 6 cells per cubic millimeter; globulin and albumin were increased, and there was a general paralytic gold reaction. There were Argyll Robertson pupils, a speech defect, a tremor of the tongue and facial muscles, and considerable ataxia. The patient was given arsphenamin twice a week, with a dosage of 0.3 gm. With this treatment, he made a rapid clinical improvement, and at the end of four months the spinal fluid became entirely negative; with the continuation of intravenous injections, he has remained symptom-free, with negative serologic findings to the present.

Thus, despite all the theoretical and practical difficulties encountered in the treatment of neurosyphilis, it is seen from a practical standpoint that almost all varieties of cases, namely, mild and severe meningovascular syphilis, tabes and general paralysis, will be found to improve to a degree that may be considered a clinical recovery through the ordinary forms of antisyphilitic treatment when this treatment is given intensively enough.

While intensive systemic treatment will improve some cases that appear to be of the severest type of neurosyphilis, other cases similar from the clinical standpoint, or even apparently of a much milder variety of meningeal syphilis, seem to derive no real benefit from such treatment. It is therefore necessary to regard each case on its own merits. It would seem reasonable to suppose that the most satisfactory effects are obtained in those cases in which the meningitic and perivascular reactions are fairly marked and of an acute character. Such changes are to be found in a certain number of cases of parenchymatous syphilis as associated or concomitant phenomena, and may be the cause of most of the symptomatology. However this may be, there are numerous cases both with indications of the meningovascular type of neurosyphilis and of the parenchymatous type which do not react satisfactorily to intensive systemic treatment. Some of these cases will be improved symptomatically and serologically by the use of intrathecal methods.

SERUM INJECTION

There are a number of special technics for the application of medicaments directly into the cerebrospinal fluid with the intention of getting the drugs into contact with the nervous tissue. The first method to be introduced into this country, and the one that is most largely used, is the Swift-Ellis method of lumbar subarachnoid injection of arsphenaminized serum. Mercurialized serum is sometimes substituted for the arsphenaminized serum. Abroad, the arsphenamin is frequently added directly to the cerebrospinal fluid, which is reinjected into the subarachnoid space. Other loci are used for the introduction of the serum. Injections into the lateral ventricles have been used for a number of years, especially for cases of cerebral syphilis; that is, general paralysis. More recently, Ayer[5] has introduced the cistern route whereby the serum can be placed directly in contact with the base of the brain. Spinal drainage, that is, the withdraw-large percentage of the cerebrospinal fluid in order to increase the penetration of intravenous arsphenamin into the nerve structure, is advocated by Gilpin and Early[6] and Dercum.[7]

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[5] Ayer, J. B.: Puncture of the Cisterna Psychiat. 4:529 (Nov.) 1920.

All of these methods have the object of bringing the drug into close relation with the central nervous system, and of overcoming the resistance offered by the various filtering devices of the body. In my experience, and in that of probably the majority of contributors to the literature of the treatment of neurosyphilis, there is a group of cases which show no results from a mild or intensive systemic treatment, but which do react quite well to one or another of these special methods. There are a certain number of men who feel that nothing is to be gained by such methods, and who, therefore, oppose it. Most notable among these is probably the Mount Sinai group of neurologists, including Sachs,[8] and Kaliski and Strauss.[9]

My point of view is based on an experience with cases that have been treated rather intensively by the systemic route for periods of months or years without satisfactory results, and then have showed good results when another technic was used. There seems to be no question that from the serologic standpoint, at least, more satisfactory results can be obtained by these methods. The serologic check has the advantage of being more objective than the clinical or symptomatologic evidence. The group of cases that seem to react more satisfactorily to the subarachnoid or ventricular injections than to the systemic methods include cases of meningovascular syphilis, tabes and general paralysis. There are many cases of so-called asymptomatic neurosyphilis,[10] that is, patients free from definite symptoms but with positive spinal fluid reactions, whose serologic findings are not improved by months and years of systemic treatment, only to be successfully cleared up by these other methods.

Case 8.—Mr. A. K. came under attention in October, 1917, because of insomnia. There were no physical findings suggestive of syphilis, but the blood was positive, as was also the spinal fluid. There were 77 cells per cubic millimeter, increased globulin and albumin, and a general paralytic gold curve. During the next two and a half years, he received fifty-seven intravenous injections of arsphenamin, with an average dose of 0.3 gm., mercury intramuscularly, and iodid by mouth. There was no improvement in the spinal fluid findings, nor did the symptoms improve. He was then given four intraspinal injections of arsphenaminized serum. After the first injection, there was marked improvement in the insomnia, and after the four injections, the spinal fluid became entirely negative.

In some experiments reported at the last session of the American Medical Association, my collaborators and I[11] attempted to show that the serum injected into the subarachnoid space does not travel far from the point of introduction. During the last year, more evidence of this has been obtained. It therefore seems rational to attempt to put the serum as near to the point of activity as possible. In cases of lumbar tabes and spinal syphilis, introduction into the lower spinal subarachnoid space seems reasonable. However, in cases of cerebral involvement, the serum should be introduced higher up. When the lesion is at the base of the brain, the route of election would seem to be the cisterna magna.

Case 9.—Mrs. G. M., because of failing vision, reported to a local hospital. An examination showed optic atrophy, Argyll Robertson pupils, and absent knee jerks and ankle jerks. In a period of two years, 1920-1922, she received fifty-eight injections of arsphenamin and forty-two intramuscular injections of mercury. The vision continued to fail, and in April, 1922, she came under our observation. The blood Wassermann reaction was positive; the spinal fluid Wassermann reaction was positive with 0.5 c.c. There were 26 cells per cubic millimeter; globulin and albumin were increased, and there was a syphilitic gold curve. After two cistern injections and two spinal drainages, the spinal fluid became negative and has continued to be negative under treatment for more than a year. The Wassermann reaction in the blood, which remained positive despite the two years of systemic treatment, became negative shortly after the subarachnoid treatment

In other cases of cerebral involvement, this route, or the ventricular route, is indicated.

Case 10.—Mr. A. G. had his primary infection in 1901. He was given the usual mercurial treatments of that time by one of our most noted syphilologists. Everything went well. In 1916, desiring to get married, he had a Wassermann test performed on his blood serum, which was negative. A year later, in 1917, he began to have symptoms suggestive of neurosyphilis—chills, sweats and tremors. He was given intravenous injections of arsphenamin and mercury, but he continued to grow worse. By November, 1919, he had a full-blown picture of the tabetic type of general paralysis. He was confused, his memory was poor, he was unable to care for himself, and his knee jerks and ankle jerks were absent. At this time the blood and spinal fluid reactions were strongly positive. He received some intravenous arsphenamin and several intraspinal injections, but failed rapidly. In the middle of December, 1919, he was trephined and given an injection of arsphenaminized serum. The ventricular fluid at this time was essentially negative, although the spinal fluid was strongly positive. Following the first intraventricular injection, he became excited and difficult to control. However, this treatment was continued, and improvement began. Interestingly enough, coincident with improvement, the ventricular fluid became positive. Improvement continued and the spinal fluid became almost negative, and for three years the patient has been employed by a municipality as a civil engineer.

DOSAGE

In attempting to secure the best results, the dosage and the frequency of treatment must, of course, play a large rôle. No standardization is possible. Reference has already been made to the fact that many cases of visceral or skin syphilis require long and intensive treatment, whereas others react entirely well to a relatively small amount. The same principle unquestionably holds for the treatment of nervous system cases by intrathecal methods. Some cases which apparently are not helped by these methods, when treatment is given at infrequent intervals such as once in two, three or four weeks, react better when treatment is given at much shorter intervals. Further, it often takes many months of treatment to obtain the results desired. The only way to determine the type of treatment or the amount necessary is by trial.

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[6] Gilpin, S. F., and Earley, T. B.: Drainage of Cerebrospinal Fluid as a Factor in the Treatment of Nervous Syphilis, J. A. M. A. **66**: 260-262 (Jan. 22) 1916.

[7] Dercum, F. X.: Functions of the Cerebrospinal Fluid with Especial Cosideration of Spinal Drainage and of Intraspinal Injections of Arsphenaminized Serum, Arch. Neurol. & Psychiat. **3**: 230 (March) 1920.

[8] Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, J. A. M. A. **69**: 681-683 (Sept. 1) 1917; On the Intravenous, Not the Intraspinal, Use of Arsphenamin in Syphilis of the Nervous System, Arch. Neurol. & Psychiat. **1**: 277-284 (March) 1919.

[9] Kaliski, D. J., and Strauss, Isadore: The Significance of Biologic Reactions in Syphilis of the Central Nervous System, with Notes on Treatment, Especially Intraspinal, Arch. Neurol. & Psychiat. **7**: 98-114 (Jan.) 1922.

[10] Keidel, A., and Moore, J. E.: Studies in Asymptomatic Neurosyphilis, Arch. Neurol. & Psychiat. **6**: 286 (Sept.) 1921.

[11] Solomon, H. C.; Thompson, L. J., and Pfeiffer, H. M.: Circulation of Phenolsulphonephthalein in the Cerebrospinal System, J. A. M. A. **79**: 1014 (Sept. 23) 1922.

Despite the most active and prolonged treatment that we have attempted, there remains a fairly large group of cases that do not respond to our therapeutic endeavors. Thus, we have patients who have received arsphenamin intravenously twice a week for a period of many months, along with intraspinal, intracisternal and intraventricular injections of arsphenaminized serum and spinal drainage, given in rotation twice a week for months and then a little less frequently for a period of one or two years, without any favorable results. A number of cases of tabes have received long continued intravenous and intraspinal treatment without obtaining the desired effect, either clinically or serologically; from the serologic standpoint, the same is true of quite a number of cases of asymptomatic neurosyphilis.

CASE 11.—P. McG. came under our care in 1919, complaining of severe girdle pains, and pains in his legs. There were ataxia, Romberg's sign, and the absence of knee jerks and ankle jerks. He gave a history of syphilis acquired in 1898. The clinical picture was that of tabes. The blood and spinal fluid showed a positive Wassermann reaction; there were 134 cells per cubic millimeter and a general paralytic gold curve. Since that time, the patient has received 103 injections of arsphenamin, 0.3 gm. dosage, twelve intraspinal injections of arsphenaminized serum, four cistern injections and thirty-four spinal drainages, as well as mercury and the iodids. Despite this large amount of treatment, the Wassermann reaction in the blood has not become consistently negative. The spinal fluid Wassermann reaction is still strongly positive, but cell count and globulin, albumin and colloidal gold tests have become negative. We have not been able to produce a completely satisfactory serologic result or adequate clinical improvement. This is in contrast to most cases of tabes.

The foregoing portrayal leads us to conclude that in the specific treatment of cases of neurosyphilis there are some cases that do well with very mild systemic treatment, others that require more intensive systemic treatment, still others that need some form of intrathecal therapy, while there still remains a group which are resistant to any form or any combination of arsphenamin, mercury, the iodids or serum that has yet been tried by us. Cases may thus be considered according to their reaction to treatment. Such a division does not follow absolutely the older concept of parasyphilis as distinguished from tertiary syphilis of the nervous system. It is found that some cases which, from the clinical and serologic standpoint, would fall in the group of parasyphilis, namely, tabes and paresis, react quite well to antisyphilitic treatment, whereas, on the contrary, cases of meningovascular syphilis falling in the group of the tertiary variety could not be satisfactorily modified.

It still remains true, however, that general paralytic and tabetic patients are, on the whole, more unsatisfactory in their reaction to treatment than the simple meningeal cases.

We are therefore forced to accept the point of view that there are certain definite limitations of our present therapeutic agents. That this is rather generally accepted for systemic syphilis as well as neurosyphilis is shown by the amount of work in process in attempting to find more satisfactory drugs. Thus, constant attempts are being made to produce new chemicals for the treatment of syphilis, as, for instance, silver arsphenamin, sulpharsphenamin, bismuth compounds, new varieties of mercurials, and tryparsamid. Very favorable results have been reported by Lorenz and others in the treatment of neurosyphilis by the drug tryparsamid. This drug, which is an arsenic derivative, is said by Voegtlin[12] to have a much greater power of permeating the nervous tissue than has arsphenamin, neoarsphenamin or silver arsphenamin.

IMMUNITY OF PATIENT

The foregoing account deals entirely with the treatment of neurosyphilis by antisyphilitic medication. It is essential to consider at the same time the reaction of the patient himself to the disease. The general immunity reactions have been briefly mentioned. These probably play an important part. Those patients who have a high resistance or the power of producing immune bodies are the ones who can be helped the most. It is therefore necessary to strive constantly to improve the patient's general condition in the hopes of increasing his bodily defense. General hygiene is an essential factor in the treatment of all cases of syphilis, and especially of neurosyphilis. Improvement in nutrition, fresh air, massage and hydrotherapy are important adjuvants and are usually insufficiently considered. The removal of all excessive stresses and strains, either physical or mental, is likewise important.

In the attempt to raise the resistance or induce immunity, a number of methods have been instituted. This is the so-called nonspecific therapy. For many years the Germans, especially, have tried a number of devices along the line of nonspecific protein therapy, most of them designed to cause a hyperleukocytosis. Tuberculin, typhoid vaccine, sodium nucleinate and a number of other similar substances have been used for this purpose.

More recently, patients with general paralysis have been inoculated with relapsing fever or malaria in order to produce a general bodily reaction in the form of chills, fever and leukocytosis. The reports of malarial therapy particularly have been most optimistic. Whatever the final conclusion for this type of therapy may be, the attempt emphasizes the desire to improve on our usual methods and to take into account the need of the patient's own immunity reactions.

This all shows that we are not satisfied with our treatment of neurosyphilis, and that we have not reached a static situation, but that continued efforts are indicated and are being made for the improvement in our methods of procedure. The chemist, the pharmacologist, the immunologist, the clinical syphilologist and the neurologist must all work together for the improvement of drugs and methods of administration and general care of the patient, in order that the future may duplicate the advances of the recent past.

SUMMARY

The problem of the treatment of neurosyphilis is to destroy the spirochetes that are present in the nervous system. The nervous tissue is walled off from the general body structures, and this leads to a relative impermeability of drugs placed in the general circulation. However, some penetration takes place, the amount apparently varying in different individuals. There is a group of neurosyphilitic cases that react well to mild systemic treatment. Others require more intensive systemic treatment. There are many, however, that are not improved to any extent by systemic treatment with arsphenamin, mercury or iodid. Some of these cases do well, however, when medicaments are

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[12] Voegtlin, Carl; Smith, M. I., and Dyer, Helen: Penetration of Arsenic Into the Cerebrospinal Fluid, with Particular Reference to the Treatment of Protozoal Infections of the Central Nervous System, Pub. Health Rep. **38**: 1003 (May 11) 1923.

given directly into the cerebrospinal fluid or when spinal drainage is used. Theoretically and practically, it seems advisable to place the medicament as near to the site of pathologic change as possible, utilizing the lumbar subarachnoid space, the region of the cisterna magna and the ventricles as conditions indicate.

No definite rules can be laid down as to which type of treatment will produce the best results in a given case. A classification based on the reaction to treatment does not coincide with the older ideas of tertiary syphilis of the nervous system as contrasted with parasyphilis, because some cases of tabes and paresis react quite well to relatively mild systemic treatment, whereas some cases of the meningovascular group do poorly on the same type of therapy. It is more difficult, on the whole, to get satisfactory results in cases of tabes and general paralysis than in the meningovascular type, and the former usually require quite intensive treatment, making use of the cerebrospinal fluid pathway. There still remains a group of cases that cannot be satisfactorily modified by treatment with arsphenamin, mercury, the iodids and blood serum.

The immunity of the patient plays a large rôle in the results obtained, and various procedures that may increase the immunity responses have a place in the treatment of neurosyphilis. Of great importance are all hygienic procedures that improve the general condition of the patient. Some favorable reports have been made from inducing febrile reactions by inoculations with malaria and relapsing fever. The hope for the future rests either in the method of inducing greater immunity on the part of the patient or in developing drugs with greater power of permeation into the nervous tissue.

THE PHARMACOLOGY OF MERCURY

A REVIEW OF SOME LITERATURE *

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The most ancient of present-day therapeutic procedures is probably the use of mercury against syphilis. In 2637 B. C., the Chinese Emperor Hoang-Ty collected the medical literature of his day, and in these books the use of mercury by friction for a disease, which it is not difficult to believe was syphilis, is described as even then a procedure of some antiquity. Hippocrates did not mention it, but his pupil Aristotle knew of it and anticipated "protoplasmic poison" when he said it killed all living things. It was used by the Arabs, perhaps from the Chinese through the Hindus, as an ointment in skin diseases during the first thousand years of the Christian Era. An Arabian physician, Avicenna, in 1000 A. D., was using it continually, principally for its laxative action. Hugh of Lucca and his pupil Theodoric used it internally as well as externally in the thirteenth century, but its use by physicians generally was prevented by the survival of the galenic prejudice against drugs of mineral origin.

However, when the great epidemic of syphilis swept over Europe, at the end of the fifteenth and during the early years of the sixteenth centuries, the great rebel, Paracelsus, Fracastor and others succeeded in routing this prejudice, and its use became general in the scourge. No less distinguished a victim than Francis the First was said to have been cured by its use; but in spite of its firm establishment at this time, it has continued until now to be the subject of violent medical controversies. It has been dropped from use and lauded to the skies as a universal panacea. The famous Dr. Dover, who rescued Alexander Selkirk from the Isle of Juan Fernandez, wrote so ably in its behalf that it became the fashion for all the ladies of London of his day to take courses of mercury. In order to demonstrate to his critics its utter innocuousness, he had a certain patient take two pounds at a single dose.

The use of mercury for many diseases other than syphilis became so general and so poorly supervised during the eighteenth century that calomel became a household drug, and the "mercurial disease," with all the symptoms of chronic poisoning, appeared and became the subject of considerable writing. Dr. Chisholm,[1] and his colleague, Dr. Rusk, in America, wrote enthusiastically of its value in yellow fever and other tropical diseases during the early part of the nineteenth century. After some reaction, traceable to its misuse, Ricord, Hebra and others placed it once more on a firm basis. In 1892 another advance in its use was marked by the introduction of the injection of mercury by Baccelli. The discovery of arsphenamin by Ehrlich threatened once more to remove it from the pharmacopeia, but its use has persisted. At present, the most interesting work is being done in connection with synthetic mercury compounds, which are intended to take advantage of the beneficial while avoiding the toxic effects. This work, while very new, has already produced mercurophen, mercurochrome-220 soluble and flumerin, and more and better drugs in the near future are promised.

The pharmacology of mercury is still in an unsatisfactory state. The mechanism of its action is not understood. Its use is still on an empiric basis. The fundamental facts as to its absorption, circulation and excretion are not agreed on. This is due to the lack of accurate methods for its quantitative determination. Collins, working under Hanzlik, reviewed this phase of the question, but found no method entirely satisfactory for the very small amounts that are involved. Lomholt,[2] however, has recently described an electrolytic method, which, in his hands, seemed to give sufficiently accurate results. In addition to this difficulty, there are often encountered unexplained variations between individual animals and patients in the way in which they react to mercury. Similar variations have often been encountered clinically.

While the use of mercury in syphilis has the sanction of the greatest antiquity and the soundest clinical observation, no better explanation for its action can be offered now than that offered by Fracastor in 1530, when he said:

> The action on the scourge is marvelous, either because its natural affinity for heat and cold renders it proper to absorb the devastating fire of the disease, or because its surprising density permits it to dissolve and divide the humors, or that its mobile and penetrating molecules, apt to infiltrate themselves

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Chisholm: Fevers.

[2] Lomholt, S.: Circulation of Mercury in the Body, Arch. f. Dermat. u. Syph. **19**: 126, 1918; Absorption and Elimination of Mercury in the Different Methods Used in Treatment of Syphilis, Brit. J. Dermat. **32**: 353 (Dec.) 1920.

in the ways of the tissues, have power of pursuing and consuming the impure yeasts of the disease, or finally that its magic virtues are derived from some occult force whose mystery escapes us.

Modern authorities suggest that it stimulates antibody formation, that it breaks down scar tissue and renders the spirochetes accessible, and that it acts directly as a trypanosomicidal agent. In respect to this last, Lomholt maintains that spirochetes grow readily in serum which contains a considerably higher concentration of mercury than that ever attained in the blood of a treated patient. It is apparent from his work and the work of others that mercury is not spirocheticidal in the body in the sense, or at least to the degree, that arsphenamin may be said to be. How its beneficial results are achieved is not known.

ABSORPTION

Mercury is absorbed from all surfaces, from the skin, the alimentary tract, the lungs, the rectum, the vagina, the surfaces of wounds, and from subcutaneous, subdural, intramuscular and intravenous injections. Its characteristic effects have been demonstrated after administration by all these routes. Metallic mercury organic compounds, and mercuric and mercurous salts have all been used successfully. It is usually stated that the action depends on the mercury ion, and that the various salts are active to the degree in which they can be converted into this form. Certainly, the mercuric salts exhibit the typical mercury actions sooner and in smaller dosage than do the others. The absorption from the gastro-intestinal tract is uncertain, and quantitative experiments on it have been few. Metallic mercury and mercuric sulphid are very slightly absorbed when given by mouth. A small proportion of calomel given for its laxative, diuretic or antisyphilitic action is absorbed, the greater part being swept out. The soluble salts, such as mercuric chlorid, which can form an albuminate with the mucous membrane of the intestinal tract, are almost completely absorbed. Surprisingly complete absorption of calomel sometimes occurs, giving rise to unexpected poisoning, but this is rare. Fistula experiments seem to show that most of the absorption takes place in the ileum, but mercurialism has been produced by rectal administration.

Through the Lungs.—Workers exposed to metallic mercury have been poisoned by inhaling the fumes; 200 of the sailors on the British ship *Triumph* were poisoned in 1810, and three of them died, when casks of mercury broke in the hold and the fumes penetrated the forecastle. Mercury can be shown in the urine of men and dogs two hours after they have been exposed to its fumes. It has been suggested that it is absorbed from the alveolar air, by virtue of its gaseous tension; but the explanation that it is deposited on the mucous membrane of the bronchi seems more plausible, especially in view of the marked irritation of this membrane which takes place when mercury is administered in this way. The uncertainty of the dosage, the bronchial irritation and the danger of poisoning have properly made this method of administering mercury obsolete. What rôle, if any, pulmonary absorption plays when mercury is given by inunction has been the subject of much discussion. Wellander and others have asserted that it plays the major rôle. But the recent work of Jenkins[3] in England, and of Schamberg[4] and others in this country, should terminate this discussion, because they showed that the greater absorption is through the skin, and not through the lungs.

From Wounds.—Absorption from the surfaces of wounds occurs with great facility when those salts capable of forming albuminates are used. This is possibly of some importance in the treatment of extensive syphilitic ulcerations.

Through the Skin.—This occurs even when the surface is intact, probably by way of the hair follicles and ducts of the sweat glands. Metallic mercury in an oily vehicle is the drug usually used. Schamberg states that calomel, if used in sufficient dosage, is just as effective and much cleaner. Cole[5] has denied that it is absorbed to any appreciable extent. It is likely that the mercury is oxidized as it passes through the skin, but it is possible that it is picked up by the leukocytes as metallic mercury. Only a small part of the mercury that is rubbed on the skin is absorbed, and, according to Cole, just as much if the excess ointment is washed off with soap and water after rubbing for a half hour as if it is left on, as is the general practice. Soap has been used as a base for the mercury ointment. Absorption after inunction, as judged by the appearance time in the urine, is fairly prompt; and, judged by the amount excreted, which will be discussed later, amounts comparable to those given by injection can be introduced by inunction.

After Injection.—Injection is becoming the most popular method for mercury administration, and much work has been done on the quantitative absorption after it is given in this way. The speed of absorption, the percentage absorbed and the locally irritating effects depend on the form used, on the vehicle with which it is given and, to some extent, on the concentration of the salt. Lomholt investigated the absorption directly by injecting known amounts of various preparations into dogs and subsequently analyzing the sites of injection at varying intervals to determine the quantity left in situ, and, by the difference, the amount absorbed. With soluble salts, using the benzoate, he showed almost complete absorption in fourteen days, but with half left unabsorbed in seven days. With salicylate, the absorption was more rapid, four fifths being absorbed in four days, and all of it in ten days. The absorption of calomel was very much slower, less than one half being absorbed in ten days. Mercurial (gray) oil was very slowly absorbed, less than one third being absorbed in three weeks. In the case of salicylate, Lomholt found that the absorption was a good deal more rapid and complete when a vegetable or animal oil was used instead of the more commonly employed liquid petrolatum. Cole, Littmann and Sollmann,[6] following the absorption of the insoluble salts with the roentgen ray, arrived at similar conclusions as to the relative speed of absorption of salicylate, mercurial oil and calomel.

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[3] Jenkins, C. E.: Some Experiments in the Volatilization and Absorption of Mercury, Brit. J. Dermat. **33:** 135 (April) 1921.

[4] Schamberg, J. F., and Kolmer, J. A.: The Germicidal Activity of Calomel, J. A. M. A. **62:** 1950 (June 20) 1914. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: A New and Superior Mercurial Germicide, J. A. M. A. **68:** 1458 (May 19) 1917. Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and First: Sodium Oxy Mercury-Ortho-Nitrophenolate, J. Infect. Dis. **24:** 547 (June) 1919.

[5] Cole, H. N., and Littmann, Sidney: A Clinical Study on Calomel Inunctions in Syphilis, J. A. M. A. **73:** 1409 (Nov. 8) 1919. Cole, H. N.; Gericke, A. J., and Sollmann, Torald: The Clean Inunction Treatment of Syphilis with Mercury, J. A. M. A. **77:** 2022 (Dec. 24) 1921. Cole, Driver and Hutton: Mercurosal in Treatment of Syphilis. Cole, H. N.; Gericke, A. J., and Sollmann, Torald: Treatment of Syphilis by Mercury Inhalations, Arch. Dermat. & Syph. **5:** 18 (Jan.) 1922. Cole, H. N., and Littmann, S.: A Clinical Study of the Use of Calomel Inunctions in Syphilis, J. A. M. A. **73:** 1409 (Nov. 8) 1919.

[6] Cole, H. N.; Littmann, Sydney; and Sollmann, Torald: [illegible] of Mercury Injections by Means of the Roentgen Ray, J. A [illegible] 1559 (Dec. 4) 1920.

The absorption, after intravenous administration, is, of course, practically immediate. Usually soluble salts are used in this way, but certain colloidal salts have been recommended. Dr. Hanzlik[7] has shown that these are not devoid of danger. Metallic mercury itself in a fine colloidal state has been exploited by interested manufacturers as a possible drug for intravenous use without, however, sufficient proof as to the safety of the method.

DISTRIBUTION AFTER ABSORPTION

The form in which mercury circulates and its distribution after absorption have been the subjects of a great deal of speculation and some experiment. Most workers affirm that it circulates as an albuminate, an organic compound, which is formed when mercuric ions are brought in contact with proteins or protoplasm. There are those who think that metallic mercury is carried by leukocytes, mechanically, so to speak. It seems more likely that it is oxidized at the site of administration. In the blood, mercury is present, according to Lomholt's experiments, both in the plasma and in the corpuscles, and in about equal amounts in each. There is some evidence that certain mercury compounds, the salicylates particularly, are not completely broken down; that mercury given in this form does not exert to the fullest extent the action of the mercury ion, but that the drug circulates and is excreted as the salicylate. This may apply to other un-ionized organic compounds.

The distribution of mercury in the body has been studied after fatal poisoning, and in a few cases in which death has occurred while a patient was taking treatment. There is an agreement in general between these two methods in the matter of the relative amounts the various organs contain. In treated cases, Lomholt found a maximum of 3 mg. per liter in the blood. Rosenbloom,[8] in a poisoned patient, found 12 mg. per liter. The bile shows relatively high concentrations, i. e., 7.5 to 16.5 mg. per liter.[2] Traces are often found in the spinal fluid of treated cases (0.04 mg. per liter). According to Lomholt, the kidneys contain the highest concentration, namely, 1.6 mg. per hundred grams of substance in a treated case, and 17 mg. per hundred grams in a poisoned patient. (Rosenbloom found 2.8 mg. per hundred grams in his case.) The liver was next in percentage content and first in actual content among the internal organs. The walls of the bowel contain the next highest amount in point of percentage. The muscles form the reservoir for the great bulk of the retained mercury, but the percentage content here is not high.

In the early part of the treatment, there is usually more mercury absorbed than is excreted. Then there comes a time when excretion becomes about equal to absorption. This is thought to occur when a certain saturation point is reached. Precisely what this saturation point is is not known, although it is a matter of some considerable interest. On the basis of careful estimations, Lomholt figures that the tissues will hold from 90 to 120 mg. without showing toxic signs. Rosenbloom found a total of 175 mg. in the body of a fatally poisoned person.

The biochemistry of mercury appears to be about as follows: After absorption, the metallic forms and the mercurous forms are oxidized to the mercuric form, and an albuminate is formed. A portion of this is left in every tissue of the body. A larger portion is caught in the kidney, and excretion is immediately begun, while a still larger portion is fixed by the cells of the liver. This portion is excreted into the bowel through the bile, and a part of it escapes with the stool, but another part is reabsorbed and goes through the same cycle. As this process goes on, the saturation point of the tissues is approached and, as it is approached, the excretion rises. However, there is a limit to the maximum amount that can be excreted by all available routes in one day, and when in a saturated individual more is given than can be excreted by all available routes in one day, various symptoms of poisoning appear. It would perhaps be ideal to reach the saturation point and then so grade the dose as to keep absorption and excretion equal. Unfortunately, this is not possible at present.

There are really three forms of mercurial poisoning. The very acute form is due to the local precipitation of tissue proteins by the mercuric ion. The chronic form is due to the tolerated saturation point being exceeded. The indirect poisoning is dependent on injury to the kidney. The local action is one of corrosion, and is exhibited principally in the gastritis and enteritis of persons poisoned by mercuric chlorid. The injuries may be sufficient to cause acute death, but, if the first short period is survived, death rarely occurs from this cause. The chronic form is seen typically in the salivated patient, though there are changes in many organs as well as the usual salivation. The local process may go on to necrosis of the jaws. The mechanism of this necrosis has been fully reviewed by Bessesen.[9] The salivation is probably not in all cases an index that the saturation point in other organs has been reached, since there is reason to believe that it depends to a considerable extent on the condition of the teeth locally. Caries, etc., favor its early appearance. It is not, therefore, always proof that a patient has been thoroughly treated.

The microscopic changes produced in all organs by mercury have been carefully studied by Kolmer and Lucke[10] and by Raiziss, Kolmer and Gavron.[11] The changes in the brain consist of perivascular, round cell infiltrations, which have always been associated with syphilitic changes. Salant[12] has investigated the pharmacologically toxic actions and has shown marked depressant effects of mercury on the heart, causing irregularities and drop in blood pressure when mercury is given in fairly large doses intravenously (I believe). This effect can be fatal. It may be a factor in the early deaths from acute poisoning. The principal anatomic changes caused by mercury are the changes in the kidneys, in which destruction of the convoluted tubules takes place. Some damage was demonstrated by extremely small doses by Menten,[13] even as little as 0.01 mg. per kilogram producing demonstrable changes in the kidney and liver. MacNider[14] investigated the toxic effects from a functional point of view. He showed that acidosis accompanied the kidney destruction. He also pointed out that animals whose kidneys were already damaged reacted much more severely to mercurial poisoning than those with healthy kidneys.

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[7] Hanzlik: Personal communication to the author.

[8] Rosenbloom: Distribution of Mercury in Body in a Case of Acute Poisoning by Bichloride of Mercury, J. Biol. Chem. **20:** 123, 1915.

[9] Bessesen, D. H.: Pathogenesis of Mercurial Stomatitis, Arch. Dermat. & Syph. **7:** 332 (March) 1923.

[10] Kolmer, J. A., and Lucke, B.: A Study of the Histologic Changes Produced Experimentally in Rabbits by the Mercurial Compounds, Arch. Dermat. & Syph. **3:** 531 (April, Pt. 2) 1921.

[11] Raiziss, G. W.; Kolmer, J. A., and Gavron, J. L.: Chemotherapeutic Studies on Organic Compounds Containing Mercury and Arsenic, J. Biol. Chem. **40:** 533 (Dec.) 1919. Kolmer, J. A., and Mastin, E. V.: Globules of Metallic Mercury in the Tissues, J. A. M. A. **70:** 1290 (May 4) 1918. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Chemotherapy of Mercurial Compounds, Am. J. Syphilis **1:** 1 (Jan.) 1917; A Study of Comparative Toxicity of Various Preparations of Mercury, J. Cutan. Dis. **33:** 819-840, 1915; Experimental Study of Mode of Absorption of Mercury When Applied to the Skin, J. A. M. A. **70:** 142 (Jan. 19) 1918.

[12] Salant, W.: Pharmacology of Mercury, J. A. M. A. **79:** 2071 (Dec. 16) 1922.

[13] Menten, M. L.: Pathological Lesions Produced in Kidney by Small Doses of Mercuric Chloride, J. M. Res. **43:** 315 (June-July) 1922.

A great deal has been written about the treatment of mercuric chlorid poisoning. This cannot be considered in detail here. Sansom showed that if in dogs a dose of 4 mg. per kilogram was absorbed, none of the recommended antidotal treatments were of any avail. The success of all treatments probably depends more on preventing absorption of mercury and removing it from the alimentary tract than on any direct antidotal action that may be achieved after the mercury is absorbed. This is accomplished by precipitation of the mercury in the stomach by albuminous materials or by chemical agents designed to form the insoluble sulphid, with subsequent removal by catharsis and lavage.

EXCRETION

Mercury is excreted mainly by the kidneys and the bowel. Trivial amounts are excreted by the sweat glands. The proportion between the amounts excreted in the urine and in the feces varies, the averages being about 55 and 45 per cent., respectively. Nothing is known as to the form in which mercury is excreted. It seems probable that the inactive sulphid is formed in the bowel, and that the mercuric sulphid is excreted as such, in part, at least; but this is not certain. There is usually a diuresis accompanying the excretion of mercury, but it is not in proportion to the amount contained in the urine. This is made use of in cases of cardiac dropsy. Excretion parallels absorption to a certain degree, but while there is no limit to the amount that may be absorbed, there is a distinct maximum limit for excretion. The limit for the kidneys, without serious damage to these organs, seems to be up to about 9 mg. daily.[2] The maximum excretion does not appear as soon as the mercury is absorbed. The curve rises to a plateau during the first few weeks of treatment. Excretion begins, however, very soon after the mercury is administered, especially after the salicylate and the soluble salts, mercury often appearing in the urine within two hours after an injection. With calomel and mercurial oil, the time of appearance and the attainment of the maximum are both delayed, as might be expected from their slow absorption.

Mercury is sometimes found in the urine long after mercury medication has been discontinued. This is seen after all methods of administration, indicating the gradual excretion of the residual mercury, but it is most marked after the use of mercurial oil, mercury having been found in the urine a year after the last dose. As to the actual daily amounts found, there is a fairly good agreement. These usually run from 1 mg. to 3 mg. daily in the urine, with the usual methods of treatment.

Next to the kidneys in importance as an avenue for mercury excretion is the bowel. Whether all the mercury comes into the bowel through the bile, or whether part is excreted directly through the bowel wall, is doubtful. Probably both channels are utilized. The daily excretion in the bowel is fairly constant, except when the drug is given by mouth. It does not vary much with variations in the quantity of feces.

Generally speaking, the excretion, both by the kidneys and by the bowel, follows the absorption. There is a gradually increasing amount excreted for a time; then the daily excretion becomes constant. There is a distinct maximum to the amount that can be excreted daily without marked damage to the kidneys. There is some evidence that even the most minute amounts cause some slight injury. Kidneys already diseased are far more susceptible to injury than are normal kidneys.

Holdewizn stated, in 1910, that mercury is not excreted in cow's milk; but Legales and Duperoy,[15] in 1900, stated that it could be found in the milk of women who were being treated with mercury, and in amounts sufficient to be of importance in the treatment of congenital syphilis.

THERAPEUTICS OF MERCURY

While a study of the pharmacology of mercury clears up certain propositions, it does not furnish the definite guides for therapeutic usage that one might desire. Mercury finds its principal use in the treatment of syphilis. Next in importance are the laxative and diuretic actions of calomel. Formerly, mercury was much used in the treatment of many other diseases, especially yellow fever and other tropical diseases. Recently, Vecki[16] and others have again recommended it for influenza and other acute conditions. In view of the favorable results that were formerly obtained by it in these diseases, it may be possible that the modern therapeutist is overlooking something in the comparative neglect into which mercury has fallen for diseases other than syphilis.

Although the mechanism of action is not known, certain facts are known about certain forms of mercury and about methods of administration that are important additions to the empiric lore of mercury. Administration by mouth, as judged by excretion curves, etc., is an uncertain method. Usually very little is absorbed with most of the preparations used. In order to reach really effective dosage by the oral route, the patient is exposed to the sudden and inexplicable absorption with subsequent poisoning, which sometimes occurs. Inunction provides a steady and fairly reliable, although somewhat slow, method of administering mercury. The excretion curve often is slow to rise, but can be kept fairly constant from day to day when a level is reached. Absorption can be quickly stopped when the first symptoms of mercurialism appear.

Treatment by intramuscular injection is, of course, more accurate and reliable, but the choice of the preparation to be used is of the utmost importance. The use of calomel and mercurial oil injections seems illogical and dangerous. The depots established by the lack of absorption of these drugs may, it is true, be a long continued source of mercury; but they constitute both a theoretical and a real danger by reason of sudden massive absorption, which may take place under trauma, etc. Cole reports that seventy-eight out of 108 fatalities due to mercury administration since 1883 were due to insoluble drugs, thirty-one of the fatalities being due to mercurial oil. Salicylate is quickly absorbed and is excreted with great rapidity, and probably a large part of it is never broken down to give mercury action. This drug appears to be only a feeble mercurial. The soluble salts are quickly absorbed and easily controlled, but painful when given by intramuscular injection.

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[14] MacNider, W. D.: Study of Acute Mercuric Chloride Intoxication in Day, Reference to Kidney Injury, J. Exper. Med. 27:519 (April) 1918; The Susceptibility of Naturally Nephropathic Animals to Acute Mercuric Chlorid Intoxication, J. M. Res. 39:461 (March) 1919; Elimination of Phenolsulphonephthalein in Acute Mercuric Chloride Intoxication, Proc. Soc. Exper. Biol. & Med. 18:73, 1920.

[15] Legales and Duperoy: Sur l'elimination du mercure par la glande mammaire, Tr. XIII Internat. Cong. Med., Paris, 1900, p. 39

[16] Vecki, V. G.: The Use of Intravenous Injections [illegible] curic Chlorid in the Treatment of Suppurating [illegible] fecti [illegible] J. A. M. A. 72:1596 (May 31) 1919.

Intravenous administration suggests itself as a method of eliminating some of the objections to the other methods. However, it presents some danger perhaps from embolism, although many thousands of injections of the cyanid are reported to have been given in the French army without serious accidents. The mercuric salts are very prone to obliterate the vein used for injection. Nixon[17] has suggested that this can be avoided by withdrawing blood into the syringe in which the mercuric chlorid solution is contained, causing thereby a precipitation of the albuminate, which, being soluble in an excess of serum, is redissolved when more blood is withdrawn and mixed with it. Then the whole amount may be injected without causing any obliteration of the vein.

Various protected colloidal compounds have also been recommended for intravenous use. However, Dr. Hanzlik[7] has expressed himself as not being convinced that the claims of their proponents for utter innocuousness and high effectiveness are altogether justified. Colloidal metallic mercury itself has been recommended for intravenous use. There would seem to be some dangers attached to it from possible embolism, etc.

CHEMOTHERAPY OF MERCURIAL COMPOUNDS

The most interesting recent work with mercury has had to do with the development of new synthetic compounds, designed to reduce the toxicity and preserve the desired effect, in the manner in which arsphenamin was brought out. This work has already resulted in the production of a number of useful drugs, among which may be mentioned mercurophen, mercurochrome-220 soluble and flumerin. The method used by Hill and Young[18] in testing these new mercurials, and incidentally all the old compounds, is a highly commendable one, and more drugs should be subjected to it. It consists in determining the amount and dosage of a drug that is necessary to render the regional lymph nodes in a syphilitic rabbit noninfectious, and is correlated with observations on the course of the testicular lesions that are produced experimentally. It is possible that the next great advances will be along the lines of these synthetics.

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[17] Nixon, P. I.: The Administration of Mercuric Chlorid, J. A. M. A. **66:** 1622 (May 20) 1916.

[18] Hill, J. H., and Young, H. H.: Experimental Studies with Mercurials in Experimental Syphilis, Especially as to Flumerin, J. A. M. A. **80:** 1365 (May 12) 1923. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in Genito-Urinary Tract: "Mercurochrome-220," J. A. M. A. **73:** 1483 (Nov. 15) 1919.

EFFECTS OF TREATMENT ON BONE LESIONS IN CONGENITAL SYPHILIS *

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AND
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The most common and characteristic bone change found in the syphilitic fetus and in the new-born infant is osteochondritis syphilitica, first described by Wegner[1] in 1870. The findings of Wegner were later confirmed by Waldeyer and Köbner, Parrot, Birch-Hirschfeld and others.

The frequency with which this change is found by various observers varies from 70 per cent. (Awsitidijski) to 93.4 per cent.[2] In roentgenographic examination of 100 supposedly normal infants, Shipley[3] and his co-workers found fifteen with advanced syphilitic osteochondritis, ten with less marked signs of syphilitic involvement, and twenty-one with changes from the normal which strongly suggested syphilis. Thoenes,[4] in a series of forty cases of congenital syphilis, found some signs of osteochondritis in thirty. In two of the cases there were, in addition, periosteal changes.

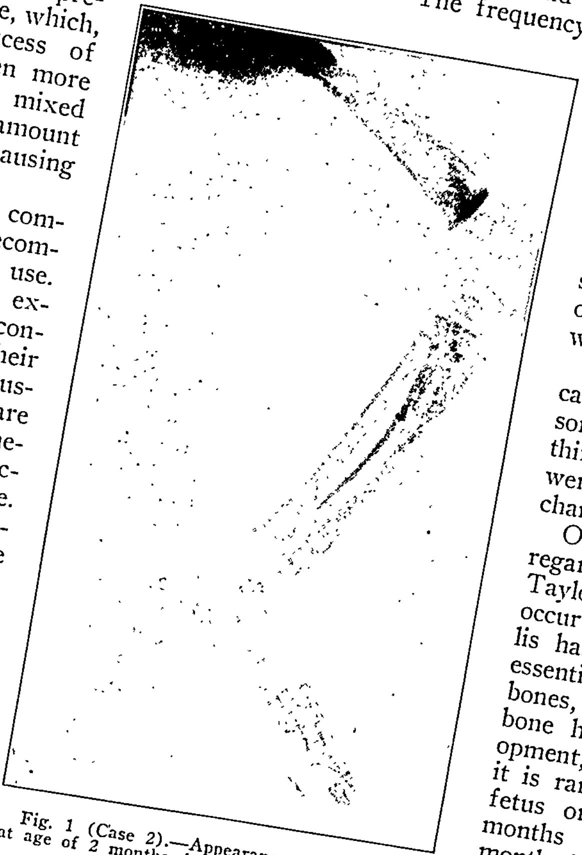

Fig. 1 (Case 2).—Appearance of bone lesions at age of 2 months, before treatment.

Osteochondritis has always been regarded as of intra-uterine origin. Taylor's contention that it might occur in very early acquired syphilis has not been accepted. It is essentially a disorder of the long bones, but it may be found in any bone having endochondral development, although in the flat bones it is rare. It is best seen in the fetus or in the infant under 3 months of age. After three months it begins to disappear, even in the absence of treatment. The ephemeral character of osteochondritis suggests that it is a secondary syphilitic process rather than a tertiary one. The lesions undergo complete healing and leave scarcely a trace.

Periostitis and gummatous processes occur later in life, although Orth described a gummatous lesion in the diaphysis of a 3 months old infant, and Ahrens[5] found total necrosis in the tibia of an infant 3 weeks old. These changes are essentially tertiary in character, and are much more lasting in their effects and are much more resistant to therapy.

According to Frangenheim,[6] Wegner originally described three stages in the process of formation of osteochondritis. In the first stage the calcified zone between the epiphysis and the diaphysis becomes widened to a breadth of 2 mm. as a white or pink line. In the second stage this may become increased to 4 mm. Necrosis of the bony trabeculae occurs, owing to ingrowth of tongues of calcification. In the third stage the periosteum and the perichondrium become thickened in the epiphyseal region in a manner suggesting the findings in rickets. Separation of the epiphysis from the diaphysis, as first described by Parrot, frequently takes place along the line of necrosis, and pathologic fracture may result.

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* Read before the joint meeting of the Section on Pharmacology a Therapeutics and the Section on Dermatology and Syphilology at t Seventy-Fourth Annual Session of the American Medical Associatio San Francisco, June, 1923.

[1] Wegner: Virchows Arch. f. path. Anat. **50,** 1870.

[2] Orth: Unna's Festschrift, Dermatologische Studien **20:** 1-12, 1910.

[3] Shipley, Pearson, Weech and Green: Bull. Johns Hopkins Hosp. **32:** 160 (May) 1921.

[4] Thoenes: Arch. f. Kinderh. **70:** 252, 1922.

[5] Ahrens: Berl. klin. Wchnschr. **47:** 2032, 1910.

[6] Frangenheim: Die Krankheiten des Knochensystems im Kindesalter, Stuttgart, Enke.

According to Shipley, the bones most commonly affected are, in the order of frequency, the lower end of the femur, the distal and proximal ends of the tibia, the distal ends of the radius and ulna, the extremities of the metacarpals, the proximal ends of the phalanges, and the proximal ends of the ulna and radius. Thoenes in the main agreed with these findings, except that in his series the distal epiphyses of the radius and ulna were more frequently involved than were the distal ends of the tibia and fibula.

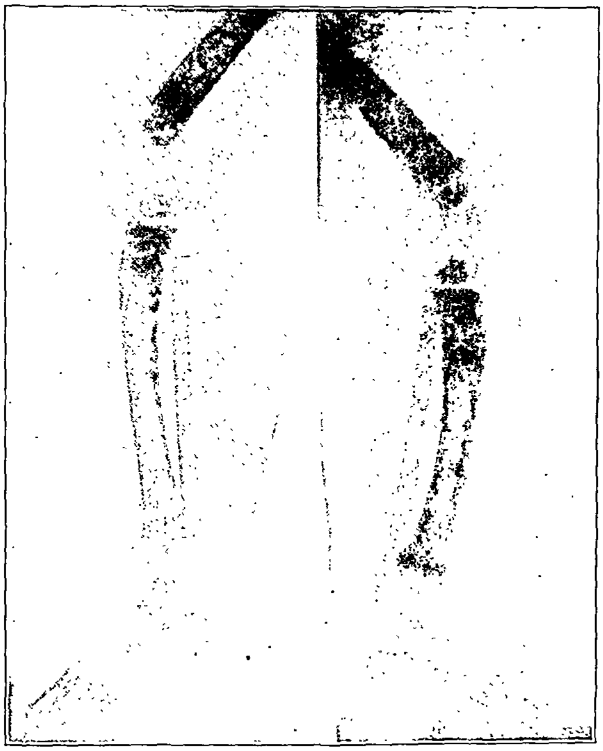

Fig. 2 (Case 2).—Appearance of bone lesions at age of 4½ months, after treatment.

Our material consists of roentgenograms of the long bones of eighteen congenital syphilitic infants. In all of these there were characteristic changes, chiefly of osteochondritis. Owing to lack of funds, we were unable to carry out more extensive roentgenographic studies. Nine of the infants had symptoms referable to bone disease, such as swelling of a joint of an arm or leg, tenderness of the shaft, pseudoparalysis of Parrot, or pain on handling.

The usual course of treatment consisted of from six to eight weekly injections of neo-arsphenamin, intravenously or intramuscularly, in doses up to 0.15 gm., followed by eight to ten weekly intramuscular injections of mercuric salicylate in oil, in doses of from one-fifth to one-third grain (0.013 to 0.02 gm.). This course was followed by a rest from treatment for from three to five weeks, and then the Wassermann test was made and the course was repeated.

The symptoms of the bone lesions decreased after the first injection of neo-arsphenamin, and usually disappeared within a month. The pseudoparalysis, when of the true Parrot type, cleared up quickly; but when complicated by rickets, the recovery of normal use of the extremities was much slower.

As the roentgen-ray findings disappear in the absence of treatment, it is difficult to determine whether or not the improvement is more rapid with treatment. To do this would require a larger series of cases than we have followed. However, the improvement both in symptoms and in roentgen-ray findings dates from the beginning of antisyphilitic treatment, whether the child is 2 months or 6 months of age.

Under the treatment given, the roentgen-ray changes show a return toward normal. The shadow at the epiphyseal line becomes broader and less intense. Trabeculae reappear and become more dense in the area of decreased density on the narrow side of the epiphyseal shadow. Thus, the irregular density at the end of the bone gradually becomes more regular, and normal bone growth continues. The periosteal changes are slower to return to normal. However, within a few weeks the narrow, clear area between the cortex and the periosteum becomes less distinct. The longitudinal striations in the thickened periosteum become decreased in intensity and, last of all, the periosteal shadow becomes narrower. The finer trabeculation of these bones sometimes persists for several months. This may be due to an associated rickets. Mild rachitic symptoms were frequent in these cases of congenital syphilis and also more resistant than in nonsyphilitic infants to the usual methods of antirachitic treatment.

In older children, ranging in age from 3 to 15 years, the bone process noted is more often a periostitis with or without a definite gummatous osteitis. This is usually most prominent in the tibia, and results in deformities of the "saber tibia" type. This we consider a tertiary process, and the periostitis results in a bone sclerosis which we could not hope to modify much by antisyphilitic treatment. The symptoms, which consist of more or less definite "growing pains" or "rheumatic pains," mostly at night, and local tenderness, are promptly relieved by arsphenamin and sometimes by potassium iodid. When an active gummatous process is going on, antisyphilitic treatment can heal this process, but not to the point of producing a normal roentgen-ray picture, so far as our experience has gone.

REPORT OF CASES

The case histories here recorded serve to illustrate the symptomatology and the course of the early and later cases.

CASE 1.—P. W., a boy, aged 3 months, had had a swelling of the left leg and a maculopapular rash over the trunk since 3 weeks of age. The child was a well nourished infant with snuffles, enlarged spleen, left inguinal adenopathy and resulting edema of the left leg and scrotum. Incision was made into a fluctuating area in the left iliac region, and several ounces of staphylococcus pus was drained out, after which the inflammation and edema quickly subsided. The Wassermann reaction was +++ on the infant and + on the mother. Roentgenograms showed a very distinct periostitis of the femur and tibia and a distinct line of increased density at the lower end of the tibia and fibula. The usual course of antisyphilitic treatment was given. After the first course at 7½ months, the Wassermann reaction was negative. At 9 months the roentgen ray disclosed a very slight periostitis, and the ends of the tibia and fibula were practically normal. At 1 year of age, after the second course of treatment, the Wassermann reaction was again negative, and the general condition was excellent except for mild rickets.

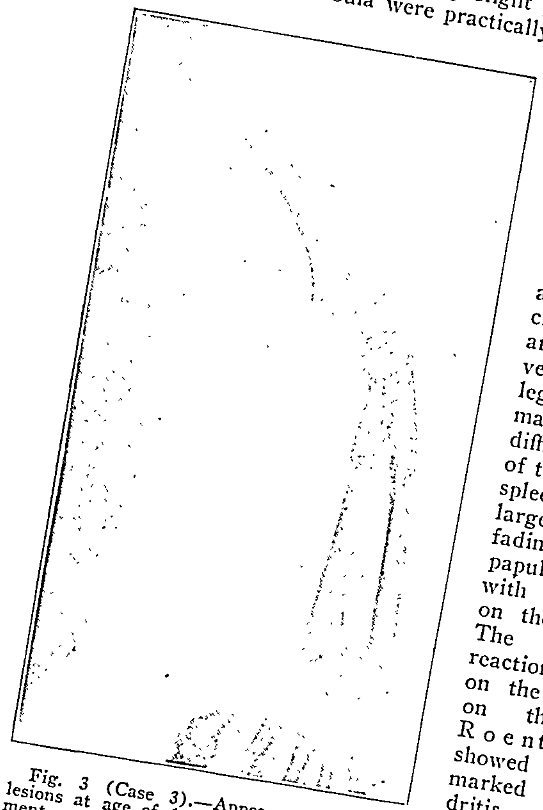

Fig. 3 (Case 3).—Appearance of bone lesions at age of 1½ months, before treatment.

Case 2.—M. S., aged 2 months, cried when handled, and used the hands very little and the legs less than normal. Nursing was difficult on account of the snuffles. The spleen was enlarged; there was a fading pink maculopapular eruption with slight scaling on the extremities. The Wassermann reaction was +++ on the infant and on the mother. Roentgenograms showed a very marked osteochondritis and periostitis. After two weeks of antisyphilitic treatment the arms and legs were used much more freely. At 4½ months of age, the osteochondritis showed distinct changes toward normal, and the periosteal line was more definite and narrower. At 7 months, the Wassermann reaction was negative, and at 16 months was still negative after three and a half months without treatment. The general condition and development were excellent.

Case 3.—J. T., aged 1½ months, had swelling and tenderness of the left elbow, and cried when handled, and especially at night. Examination showed snuffles, swelling and tenderness of the left elbow, with pseudoparalysis of Parrot. The other extremities were tender. On the soles of the feet there were copper colored macules, slightly papular, with fine scales in the center. The spleen and epitrochlear glands were palpable. The temperature was 101.6 F. (rectal). The Wassermann reaction was +++; of the mother, +++; of the father, negative. The roentgen ray showed very marked periostitis of the upper end of the radius and a line of increased density at the distal end of the radius and the ulna. Antisyphilitic treatment was started as outlined. In one week the left arm was being used more and the crying was less when the infant was handled, and in one month the left arm was being used almost as freely as the right. At 3½ months of age, the density of the lines at the epiphyseal junction was decreased. At 6 months, the Wassermann reaction was negative. At 1 year, the osteochondritic changes had disappeared and only slight periosteal thickening of the radius still persisted. At 18 months, the Wassermann reaction was still negative.

Case 4.—M. H., aged 6 months, seemed to have pain on handling, especially if the arms and legs were handled. This had been present since 2 months of age. At the onset the joints were swollen and tender. There was a generalized rash soon after birth. At the time of examination there was a palpable spleen; the epitrochlear glands were palpable, and there was a scar of a large, recently healed lesion on the buttocks, 3 or 4 inches in diameter, which had been ulcerated. The ankles and the right elbow were enlarged and slightly tender. The Wassermann reaction was +++ on the infant and on the mother. The roentgen ray showed very marked osteochondritis and some periostitis. Antisyphilitic treatment was started. At 9 months the child was much stronger; the osteochondritis was much improved, and the periostitis was somewhat improved. At the end of the first course of treatment, which was very irregular, at the age of 16 months, the Wassermann reaction was negative.

OLDER CHILDREN

Case 5.—D. E., aged 13 months, had had antisyphilitic treatment previously in the clinic for two years, and the Wassermann reaction changed from +++ to +. At the end of a course of mercury treatment, the patient complained of occasional pains and tenderness along the tibias. Roentgenograms showed some periosteal and cortical thickening of the tibias. Potassium iodid, 10 grains (0.65 gm.), three times a day, was given, and the pain and tenderness were relieved within a few days.

Case 6.—B. B., aged 18 years, had had pains in the legs since 9 years of age. Swelling over the tibias was noticed for five or six years. The tibias were very irregular and tender. Roentgenograms disclosed gummatous osteitis and periostitis of the tibia and fibula and less of bones of the forearm. The Wassermann reaction was +++; the mother had previously had treatment. Mercury rubs that were given to the patient a year before did not affect the pains. Neo-arsphenamin and potassium iodid were started. In one week there were no more pains; and there was no more tenderness after three weeks. Some swelling of the soft tissues decreased, but the roentgenograms show slight, if any, change after one course of treatment. The Wassermann reaction is still +++.

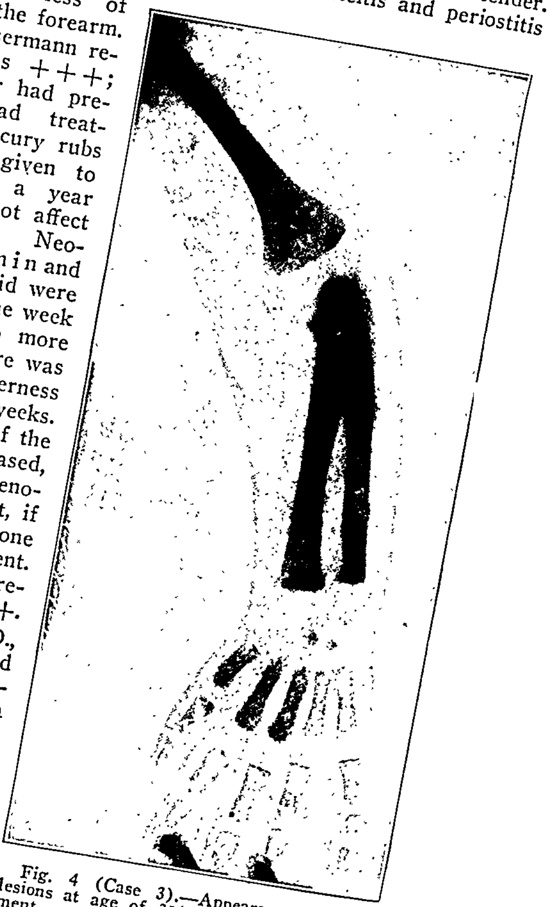

Fig. 4 (Case 3).—Appearance of bone lesions at age of 3½ months, under treatment.

Case 7.—P. D., aged 11 years, had pain and swelling of the left tibia for seven months. The epitrochlears were palpable. There was anterior bowing of the tibia in the middle third, and more of the left leg. A roentgenogram disclosed anterior bowing and thickening of the cortex of both tibias. The Wassermann reaction was +++. One neo-arsphenamin injection was given, and potassium iodid was started. One week later the pain had practically ceased. A second injection of neo-arsphenamin was given, and a week later there was no more complaint of pain and no tenderness on pressure.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SOLOMON, LEE, AND SUTHERLAND AND MITCHELL

Dr. Harry E. Alderson, San Francisco: Drs. Mitchell and Sutherland's visualization of the bone changes produced by the disease and by therapy makes it evident that routine roentgen-ray examination should be made in all these cases.

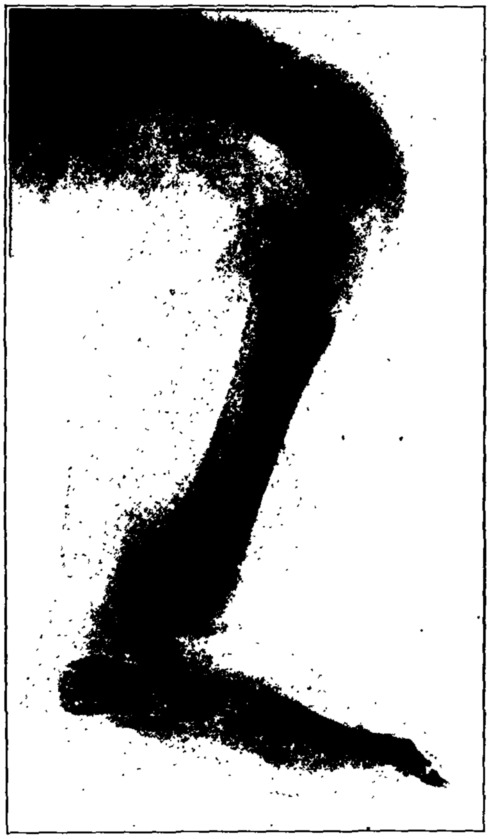

Fig. 5 (Case 4).—Appearance of bone lesions at age of 6 months, before treatment.

Dr. Lee's presentation of authoritative information on a very old subject is most interesting, instructive and timely, for there is probably no other subject concerning which there are more false and unfounded ideas. As a member of the California State Board of Medical Examiners, I am well aware of this. We have made it a practice to ask questions on syphilis at each oral examination. After hearing a few hundred candidates answer these questions one is not surprised that there are so many cases of visceral syphilis that go unrecognized and untreated until serious complications develop. As Dr. Solomon stated in his paper, central nervous system complications may arise at any stage. He brings up most interesting questions concerning the patient's resistance and means of increasing it. The danger of overwhelming this by too intensive treatment must not be forgotten. At the same time, it must be remembered that central nervous system involvement is very apt to be a result of inefficient early treatment, so that the best treatment of central nervous system syphilis is prompt, judicious therapy instituted at the time of recognition of the primary lesion. Although methods differ, the kind of early intensive treatment administered varying with the specialist, I believe that the end-results are about the same, provided that the active therapy extends over two years, in early cases, and one is guided by the results of careful examinations at frequent intervals. It should be our aim to give several courses of arsphenamin and mercury, together or alternately, during the first year, the size and frequency of the dose being determined by the patient's tolerance or by complications. No set schedule of dosage should be outlined, for the treatment should be individualized.

Dr. Ernest Dwight Chipman, San Francisco: I feel very strongly on the question of congenital syphilis because in our textbooks there is a deplorable lack of matter concerning this phase of the disease. Among the recent books, that of Hazen has a comprehensive chapter, and Stoll of Hartford two or three years ago published an article on late hereditary stigmas which should stimulate further investigation.

Dr. L. G. Rowntree, Rochester, Minn.: A great service can be done to medicine, as a whole, through the work of the syphilologists if they will give attention to the action of drugs in cases of neurosyphilis and publish their findings. In many instances it is difficult to be certain whether or not the condition that arises is the result of syphilis or of treatment. Dr. McFarland, in Dr. Stokes' department in Rochester, has recently carried out what I believe to be the most practical investigation in this regard, and has shown that in the majority of cases the danger to the kidney in the use of mercury has been overestimated. Dr. McFarland has studied this problem, using hundreds of controls, and has found that only rarely, and then when treatment has not been employed advisedly, has any danger been encountered. This I believe to be a very important consideration. In the same general connection, I think we should have more information in regard to hepatitis. Many cases of jaundice are arising throughout the country and in case any treatment for syphilis is being administered the jaundice is frequently ascribed to the arsphenamin. Dr. Stokes has proved that in many instances this jaundice is an expression of infectious hepatitis rather than of toxic hepatitis. We should all study the effect of endocrine therapy in the treatment of syphilis. We have had two very interesting cases this spring, one a case of Addison's disease in which every treatment was followed by distinct exacerbation of all the symptoms, and this could be prevented absolutely by the simultaneous administration of epinephrin.

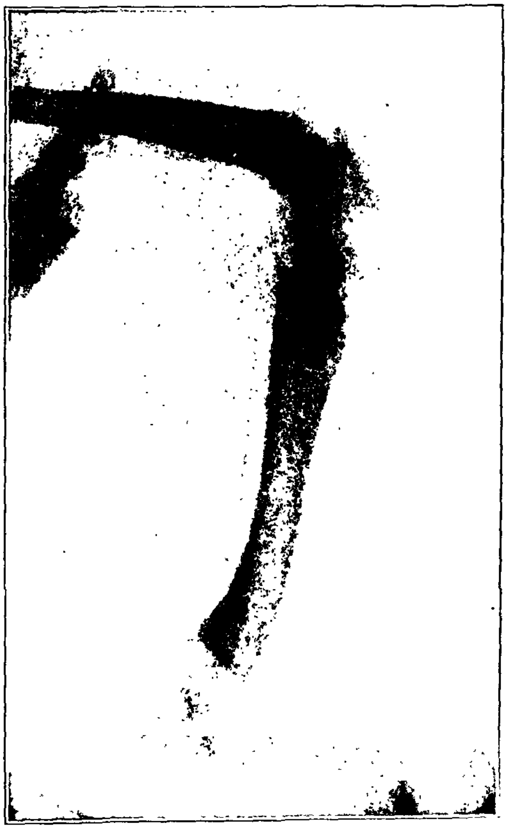

Fig. 6 (Case 4).—Appearance of bone lesions at age of 9 months, under treatment.

Dr. Charles L. Rybke, Portland, Ore.: Dr. Solomon has called attention to the cases in which a positive Wassermann reaction occurs for thirty or forty years, in fact during the lifetime of the patient. Would he treat them with no syphilis evident?

Dr. Walter V. Brem, Los Angeles: As to the value of the quantitative Wassermann reaction as a guide to treatment, the diagnostic test is made with a 1:5 dilution of the serum. If no quantitative test is made, the patient may be treated for several months and the serum reexamined and still give a 4 plus reaction, and the patient is said to be "Wassermann-fast." If the serum had been titrated it might have given a reaction in a 1:100 dilution or even more. In a later test the titer may have been reduced to a 1:20 dilution, and still the routine (diagnostic) test would show no change. However, the actual condition would be that the Wassermann reaction is reduced in strength approximately 80 per cent., and we believe that that means that the treatment has been effective to a great degree. If we find that the Wassermann reaction is not decreased in intensity, then we can vary our method of attack. I feel that this is a very important point in the guidance of treatment, and it is one on which Dr. Kolmer has laid stress in the description of his new test.

Dr. Solomon Solis-Cohen, Philadelphia: Regarding the question of the use of mercury, we do not know how mercury cures in cases of syphilis, but it does, and it did before Ehrlich or any of the rest of us were born. When arsphenamin was discovered it was supposed that one injection would effect a cure in every case of syphilis, but very soon we found that this led to disaster. That disaster was overcome by the association of the old mercurial treatment with the new arsenical treatment, and that is the only method of attacking this disease.

Dr. Frank W. Cregor, Indianapolis: If we take into consideration the vast capillary dilatation that results from physical exercise, we should put our patients at the greatest possible physical rest at that stage of the disease when the spirochetes are being distributed to every part of the body. At that time we are employing our most intensive treatment, and we can limit distribution by rest. I protest against the use of the words "potassium iodid." I am a free user of the iodids and especially of sodium iodid. If we follow the teaching that potassium salts are irritating to the kidneys and depressing to the myocardium and that the sodium salts are just as efficient, why would any one employ potassium salts in preference to sodium salts?

Dr. Harold N. Cole, Cleveland: The work recently done by Finger and some of the German dermatologists last year is very important. Finger has been trying to show just when the central nervous system of the patient is invaded by syphilis and he has been collecting a series of cases in which they have done lumbar puncture over a period of five years. He found in a series of 3,000 cases that invasion of the central nervous system took place in most cases within the first year of the disease. If that is true, and I am inclined to think that it is, routine lumbar puncture should be done, just the same as we make a Wassermann test, and if these patients exhibit no involvement of the central nervous system we can be fairly sure that they will not develop tabes or general paralysis in the future.

Dr. Arthur M. Rogers, Los Angeles: Clinicians who depend somewhat on the laboratory for guidance in treatment have many problems, and some better method of reporting the findings of the laboratories should be devised. We want a report that is definite in meaning and findings. If they tell me that my report after six months' treatment of the patient is exactly the same as at the beginning of the treatment I wish to know whether they mean that or whether they mean, as Dr. Brem said that it is 90 per cent. better.

Dr. Paul J. Hanzlik, San Francisco: Dr. Lee mentioned some of the preparations of mercury tested by Dr. Karsner and myself. These were colloidal preparations. The proteins used as protectives had definite effects when injected systemically. It was found that those compounds which were protected by lysalbinate prolonged the coagulation time of the blood. There were injurious effects on the tissues as indicated by the presence of congestion, hemorrhages and thrombi or emboli, even after the administration of subfatal doses. Some of the preparations were more toxic than the protective envelop itself, indicating that the mercury compound was responsible. These preparations are not altogether devoid of toxicity, and they should be used cautiously, if at all.

Dr. W. J. Wallace, Oklahoma City: Will Dr. Lee tell us of his experience with mercury in cases of neurosyphilis? Will Dr. Solomon tell his dosage and describe the method he uses in giving mercury intraspinally?

Dr. Cary Eggleston, New York: The question has been brought up as to the choice between sodium and potassi iodid. I believe this is a considerably more difficult proble than merely whether we should select the cheaper salt or tl one that is theoretically best borne by the host, sodium iodi It has been shown in work from the Mayo Clinic that whe potassium iodid is given by mouth it inaugurates some definite chemical change which results in the formation in the blood of a sodium-protein compound which is quite different from that formed in the blood by the oral administration of sodium iodid. The statement is often repeated that since potassium salts are depressing to the heart we should give preference to sodium salts. There can be no question about the depressing action of potassium salts on the heart in perfusion experiments, but the important fact which is overlooked is that potassium is so extremely rapidly eliminated from the human body that it is almost impossible to poison the heart by its salts administered orally. We have lost sight of the fact that fifteen years ago it was not uncommon to see patients who were consuming as much as 400 or 500 grains of potassium iodid daily without cardiac depression. We now think that that was an unnecessary waste of potassium iodid; that if results are not secured with 60 or 90 grains a day we had better give up the drug.

Dr. Samuel Ayres, Jr., Los Angeles: I should like to know whether any one has had any experience with tryparsamid.

Dr. Jeffrey C. Michael, Houston, Texas: Dr. Cole brought up an important point. Will Dr. Solomon tell us, as nearly as he can, what we are justified in telling our patients about the prognosis of neurosyphilis from the spinal fluid findings? That is, if a patient at the end of the first year of the disease has negative spinal fluid findings, what can we tell him as to the possibility of his developing neurosyphilis later?

Dr. James Herbert Mitchell, Chicago: The work of Shipley and his co-workers on osteochrondritis syphilitica started us on our work. It is well known that the Wassermann reaction is frequently negative in the patient with congenital syphilis in the first few weeks. Osteochrondritis syphilitica, however, is best seen in the fetus or immediately after birth. The bone changes in rickets are somewhat similar but they do not develop until some months after birth. Therefore, the roentgen-ray examination of the long bones is probably the most valuable method of diagnosis of congenital syphilis at the present time.

Dr. R. V. A: Lee, San Francisco: We have used mercury intradurally in a large number of cases with results which have been very good in general. Simultaneous use of mercury and arsenic does not cause irritation of the kidneys when they are not diseased, when the drugs are used in the ordinary clinical way. Drs. Hugh Young and Justine Hill have tested the curability of syphilis by the use of mercury by producing chancres in rabbits and determining with what doses region lymph nodes could be made noninfectious. In the matter o polydrug treatment, in general many diseases are cured mor rapidly when two drugs are used simultaneously than when one is used alone. There is no reasonable basis on general grounds why mercury and arsenic should not be used simultaneously.

Dr. Albert Keidel, Baltimore: About the differentiation of jaundice in treated cases: We have no means of differentiating jaundice occurring during treatment because until recently methods of studying the effect of arsphenamin and mercury on the liver have not been available. Dr. Rosenthal, in the department of pharmacology, has been investigating some of our cases with a kidney-liver test. It is too early to say anything definite, but in some instances the liver has been damaged to as high as 25 per cent., and in one such case treatment was continued without interruption with no untoward symptoms. Referring to what Dr. Brem said about the high titrate or the low titrate, I wish to say that it is still a positive Wassermann reaction, and we are not saying anything about the degree of titer. In my opinion, a positive Wassermann reaction, whether high or low titer, means virtually the same thing. It is my observation that when patients receive treatment at repeated intervals every week and a Wassermann test is made it is possible to note that early in the treatment in early syphilis there is a very profound diminution in the titer in the positive Wassermann reaction. In some instances this will occur throughout 75 points in the titer. I was pleased to hear Dr. Cohen say that we should treat syphilis in the patient because I do think there are certain general dicta which we can express in regard to the treatment of syphilis. One is that it must be continuous and it must be effective. It must be continued over a considerable period of time, but I cannot agree with Dr. Cohen as to the length of time. I think it would be unwise to subject these patients to the drudgery of routine treatment throughout their lives. I have no doubt that there are cases that are never cured but I think they are apparently in the minority. In reviewing our cases we are convinced that those patients that are adequately treated are cured within one or two years of the treatment. I mean by that that the Wassermann reaction has been reversed and that there is nothing to indicate that they are still syphilitic. Dr. Cregor spoke of exercise at the time of the general dissemination of the infection. I had not thought of that before, but the only thought that occurs to me now is that the general dissemination of the infection is accomplished at the time we recognize the disease, or make the diagnosis. It has not, of course, reached its peak but it has occurred. I agree with what Dr. Cole said about routine lumbar punctures. We have made a puncture in every case in our clinic, and in practice and in this way can show that in 20 per cent. there are abnormalities in the cerebrospinal fluid. It has been shown by other workers that all spinal fluids that are free of these abnormalities are not infectious. Animal inoculation has proved that they are not. Some one spoke of tryparsamid. It is of no value in early syphilis, as it has no influence on the blood or Wassermann reaction. For some reason it does have a very beneficial effect in late neurosyphilis. As to prognosis, in a patient whose fluid was negative after treatment lasting a year I think we might answer in this way: We were unsatisfied on that point and so made repeated examination of patients who had been treated and almost always those cases that were negative when treatment was begun were still negative, except two cases, and those had bone lesions of the skull and we had reason to believe that the nerve centers had been reached in that way. It is fair to believe that those patients with negative spinal fluid before treatment will be negative afterward. We have given a great many doses of flumerin, and have proved that it does kill spirochetes.

DR. HARRY G. IRVINE, Minneapolis: About the quantitative test, we have recently studied several thousand tests with the Kolmer reaction and at the same time have taken blood from the same patient daily for a period and tested the same blood over periods of time. The quantitative test and the routine test both show a certain amount of variation. It is not possible to draw too definite conclusions from a single positive Wassermann reaction one way or another. I agree with Dr. Keidel that a positive Wassermann reaction means positive syphilis, but we should be sure that it is a positive Wassermann reaction, and that can only be done with very careful technic. Our work showed a great deal more reliability in the Kolmer test than in the test with cholesterolized antigen. The Kolmer antigen and the cholesterolized antigen showed a disappearance of the positive reaction much more slowly than the routine test. The Kolmer test shows an early infection much sooner than the routine test and it is an important contribution to our work.

DR. H. C. SOLOMON, Boston: The positive Wassermann reaction is an indication that the patient has syphilis, but it needs a good deal of clinical checking. If a patient has no evidence of syphilis except the positive Wassermann reaction, then the question as to whether to treat that syphilis depends on the patient. If he is in the twenties or thirties, and it is reasonable to believe that he has syphilis, and if one can treat that patient for a certain period of time, I believe that patient should be treated. There is good evidence if there is a positive Wassermann reaction that the patient has syphilis, and in a young person there is a good chance of developing syphilis. A little treatment is dangerous, and unless a patient can be treated sufficiently I think he should be left alone. If a man is 50 or 60 and has had syphilis for thirty or forty years let us assume that he can go another thirty or forty without treatment, and that is long enough. I think we have to consider the individual, as has been indicated. About the quantitative Wassermann reaction, when we have one test it is not very satisfactory, but if we do as Dr. Keidel has indicated—take a test every time an intravenous injection is given, once or twice a week, it is very important to have this test. If one is going to pay any attention to a Wassermann test, why take a test once in six weeks or six months and be exceedingly depressed when one finds it is positive or elated when it is negative? One does see a variation in the course of months and if one sees that, it is encouraging. In the spinal fluid examination also, titration is very helpful. If we start with a postive Wassermann reaction in 5: 100 and begin to get it negative in 0.2 c.c., we know we are getting to where we can prognosticate that things are going on well, whereas if there is no change in several months we had better follow another method. In the spinal fluid this is very helpful. Dr. Cole struck the keynote of what is one of the most important things in neurosyphilis, and that is lumbar puncture. About 20 per cent. of these patients suffer with neurosyphilis; and if that 20 per cent. had treatment from a physician who should be capable of treating syphilis, much should be accomplished, yet they develop central nervous system syphilis. The symptoms appear late, but the spinal fluid in the majority of cases is positive early. If one will do a Wassermann test on the cerebrospinal fluid, the treatment can be checked by the examination of the fluid just as we check the systemic treatment by the blood Wassermann reaction. If at the end of six months or a year it is still positive when it was positive in the beginning, that patient is not getting the proper treatment, no matter what it is. In the majority of instances the most intensive treatment has not been given. I think there is no question about the fact that in the majority of instances in which at the end of six months the spinal fluid is negative, that patient will not develop severe central nervous system syphilis. There are exceptions. In one case that I recall in which the cerebrospinal fluid was negative at the end of one year, six years later it was positive. I believe, however, that if we see a patient with a negative cerebrospinal fluid and it still remains negative after six months, the chances for the development of central nervous system syphilis are remote, and then we can follow up the case.

Edema.—While the significance of salts in the development of edema has attracted the attention of investigators for a considerable number of years, the conception that hormones may also play a part in this process is of more recent origin and it is mainly to the investigations of Eppinger that we owe this addition to our knowledge. Eppinger found that in many cases of edema, especially in edema due to the so-called myodegeneration of the heart, to nephrosis, acute and subacute nephritis and chronic nephritis—provided in the latter cardiac symptoms are not yet threatening, and the nonprotein nitrogen in the blood is still relatively low—the administration of thyroid gland may lead to the discharge of edematous fluid even in cases in which other modes of treatment are ineffective. In normal individuals thyroid does not act as a diuretic, neither does it strengthen the effect of caffein, but following oral or subcutaneous injection of water or sodium chloride solution thyroid administration causes a more rapid elimination of both of these substances.—Leo Loeb.

THE TRIGON SURGICALLY CONSIDERED

ITS PATHOLOGY, A NEW METHOD OF DIAGNOSIS, AND ITS OPERATIVE MANAGEMENT [*]

ERNEST M. WATSON, A.M., M.D.
BUFFALO

Changes in the trigon, while they have been observed from time to time, have not received the careful study that is due a condition of such functional importance.

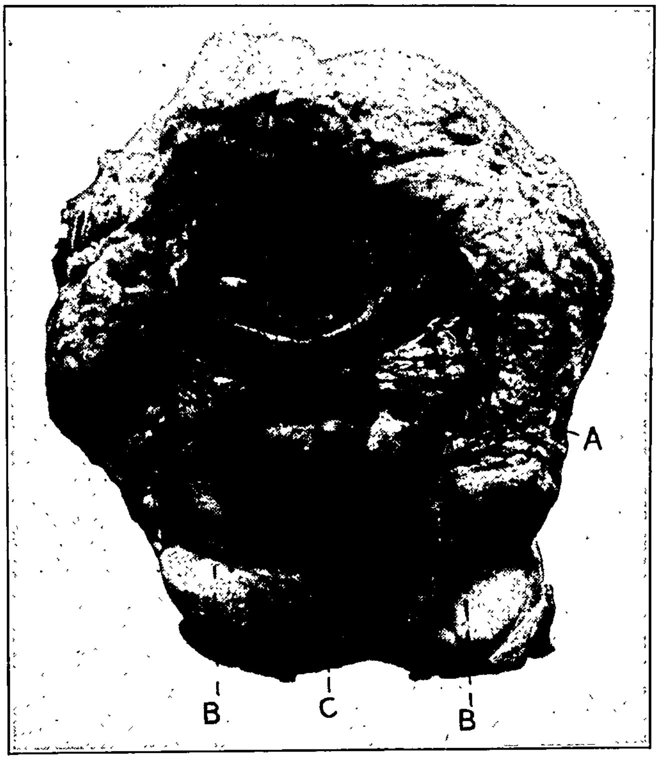

Fig. 1.—Necropsy specimen of greatly hypertrophied trigon secondary to an enlarged prostate and a thickened bladder: *A*, hypertrophied and greatly elevated trigon (interureteric ridge, or Mercier's bar); *B*, *B*, lateral prostatic lobes greatly enlarged etiologically responsible for the secondary trigonal hypertrophy; *C*, middle lobe of prostate.

The fundamental work of Wesson [1] has done much to clarify our views regarding the development and function of the trigonal muscle. More recently, Young and Wesson [2] have given us the only study in English of the clinical pictures and operative management of trigonal obstruction.

A search of the literature has failed to give any information regarding the detailed pathology of these so-called obstructive or hypertrophied trigons, yet the rather infrequent enlargement of the subtrigonal or Holmes group of glands, while of only occasional clinical interest, is now rather generally recognized on cystoscopy and its operative removal well understood. The condition of the trigon to be considered here is that form of trigonal enlargement giving a greatly hypertrophied and elevated interureteric ligament, or Mercier's bar, which enlargement produces a bas-fond beyond it containing a varying amount of residual urine—a condition amenable only to surgical treatment. Trigonal changes of this character are, I believe, more frequent than is generally recognized. From our present knowledge, we must look on them as a condition secondary to obstructive lesions along the lower urinary tract; namely, urethral strictures, median bar formation, and prostatic hypertrophy. Corbus and O'Conor [3] have reported a similar condition in certain cases of tabetic bladder, though such a lesion usually gives a trigon and interureteric ligament of normal size, or one that is atrophic. Superimposed infection seems to be a definite augmenting factor in these cases prone to undergo trigonal hypertrophy. The presence of the primary obstructive lesion can usually be demonstrated at the time the secondary change in the trigon is recognized. However, in one case studied the patient had a residual urine of 150 c.c. contained in a bas-fond beyond the trigon, and symptoms of dysuria and frequency persisting for ten years after a punch operation for median bar obstruction, with no sign of median prostatic obstruction existing at the present time. One other case presented an appreciable residual urine with its associated clinical symptoms after prostatectomy, which residual urine was found to lie in the bas-fond beyond a trigonal bridge.

From the material studied, it has been possible to group the pathologic changes of trigonal obstruction in three divisions: (1) a simple muscular hypertrophy; (2) a muscular hypertrophy associated with hypertrophy of the subtrigonal gland tubules, and (3) a type of "dissecting trigon" without hypertrophy of any sort, either muscular or glandular.

In the simple hypertrophy type, the trigon grossly is everywhere thickened. Its surface is usually somewhat puffy and edematous, but smooth, and over it there is a generalized process of hyperemia. The interureteric ligament, or Mercier's bar, is especially prominent. It stands up like a dividing ridge, and may measure 2.5 cm. in height and 2 cm. in thickness, as in one specimen studied. This dividing ridge, or bar, is seen to originate from each upper extremity of the trigon, and on its distal portions are situated the openings of the ureters, which are usually more puffy and edematous than normal. The microscopic study of sections of this type of trigon removed at operation shows that the mucosa is somewhat thickened and its surface thrown into numerous fine folds. Beneath the mucosa there is encountered a varying degree of round cell infiltration denoting a definite reaction to infection, and this would appear to be of rather

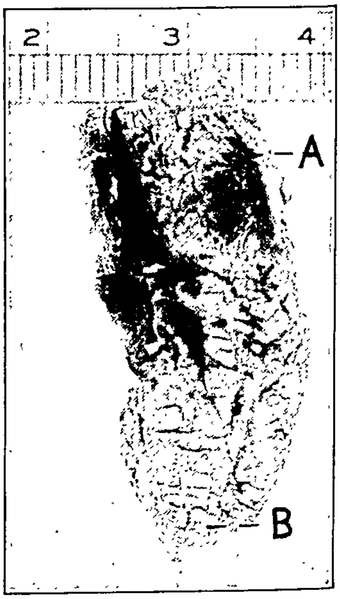

Fig. 2.—Dorsal surface of middle portion of trigon and interureteric ligament; hypertrophy of Type 1 (operative specimen): *A*, upper portion of trigon (hypertrophied interureteric ridge); *B*, apex of trigon.

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[*] From the Department of Urology Medical School, University of Buffalo, and the Urological Service of the Buffalo General Hospital.

[*] Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Wesson, M. B.: Anatomical, Embryological and Physiological Studies of the Trigon and Neck of the Bladder, J. Urol. 4: 279-316 (June) 1920.

[2] Young, H. H., and Wesson, M. B.: The Anatomy and Surgery of the Trigon, Arch. Surg. 3: 1-37 (July) 1921.

[3] Corbus, B. C., and O'Conor, V. J.: The Tabetic Bladder from the Standpoint of the Urologist, J. A. M. A. 79: 1750 (Nov. 18) 1922.

long standing. The round cell invasion is usually quite superficial. The blood vessels are fairly numerous, especially as the region of the lower fourth of the trigon is reached. Some of the more superficial vessels have about them considerable round cell infiltration. Beneath the barrier of round cell infiltration, there is considerable loosely placed fibrous tissue, which is distributed well down to the base of the trigon or the beginning of the true bladder muscle. In the upper portion of the trigon, in the region of Mercier's bar, there are numerous hypertrophied muscle bundles, which run transversely or nearly so; while, as the central and apical portions are reached, the muscle bundles are more longitudinal and less given to hypertrophy.

The second type of trigonal enlargement is one of a muscular hypertrophy associated with an increase in the size and number of the subtrigonal gland tubules and those accessory to them. In the gross, the trigon of this type is similar to that in the first group, but its surface is a little more irregular and it is less likely to be an asymmetrical organ. The glandular elements, however, do not appear to reach the size and shape characteristic of the subtrigonal hypertrophy usually attributed to the Holmes group, and never do they become definite lobes projecting into the bladder. In the specimens studied, the glandular hypertrophies have occupied the upper third of the trigon usually far beneath the interureteric ligament, and situated almost on the true bladder musculature. In their location thus described, the tubules appear to have a different site than the typical Holmes group, which are usually encountered in the lower third of the trigon just within the vesical orifice. In this group, also, a thickening of the mucosa with round cell infiltration usually in the superficial areas is encountered. Trigons of the two types just described have been encountered secondary to urethral stricture and median prostatic bar formation, and in such cases there has been a long existent cystitis with pus and organisms present in the bladder urine.

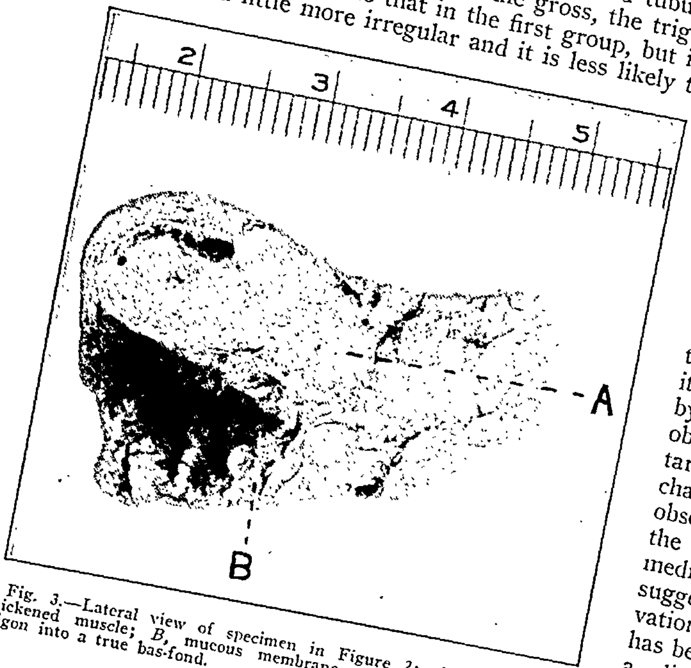

Fig. 3.—Lateral view of specimen in Figure 2: *A*, cut surface of thickened muscle; *B*, mucous membrane extending far beneath the trigon into a true bas-fond.

The third type of obstructing trigon, the mechanically dissecting trigon, may be without appreciable muscular hypertrophy, with no glandular elements present and with no evidence of round cell infiltration. It would appear that this type is less common, less prone to assume the large dimensions of the two preceding, and without a very great increase in its size. In the gross, this type of trigon exists as a thin ridge. The organ is not puffy or edematous, and it appears in the bladder as a thin membrane, which is more undermined than the two groups just described. Trigons of this type have been encountered in cases of prostatic hypertrophy of long standing, but without infection present in the bladder urine for any length of time.

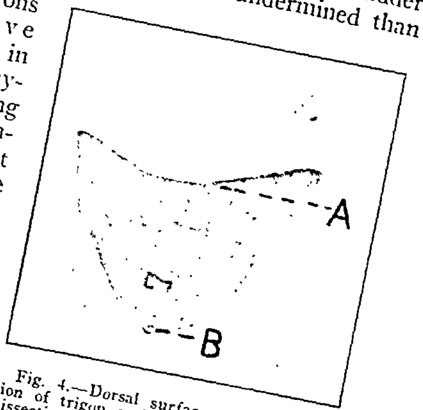

Fig. 4.—Dorsal surface of middle portion of trigon and interureteric ligament, dissecting trigon (operative specimen): *A*, upper surface in the region of the interureteric ligament not appreciably hypertrophied; *B*, apex of trigon.

The diagnosis of the true hypertrophied type of obstructing trigon is not always an easy matter. On cystoscopy, the greatly enlarged interureteric ligament can readily be seen; but often on a little further observation this obstructing bar not infrequently may change in its shape and prominence, depending on any straining by the patient. Often the straining may not be observed by the examiner, and the more or less involuntary resistance of the patient is noted only by this changing prominence of the interureteric ligament. On observing this interureteric pull further, it is seen that the sides of the bladder may be drawn in toward the median line. The morphology of the bladder then suggests somewhat the hour glass outline, which observation has been noted by Young and Wesson;[2] and, as has been further stated by Young, in one case in which a diverticulum was present associated with what appeared to be a hypertrophied and obstructing trigon on cystoscopy, it was planned to divide this trigon at operation. At operation, however, the diverticulum

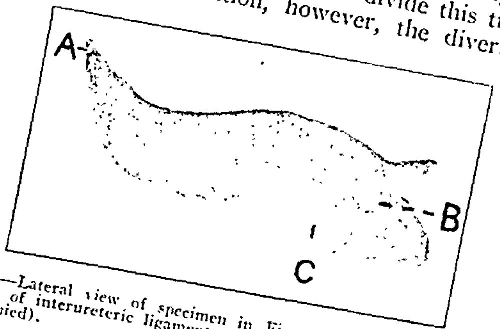

Fig. 5.—Lateral view of specimen in Figure 2: *A*, apex of trigon; *B*, region of interureteric ligament; *C*, cut edges of muscle fibers (not hypertrophied).

was removed, but the trigon on palpation appeared only moderately enlarged, and the interureteric bar was not an actual obstructing element. Reference is made to this observation to make us realize the difficulty of making an accurate diagnosis. It shows that an apparent obstructing interureteric ligament should [illegible] established as a real pat[illegible] obs[illegible]on bef[illegible] tive therapy is in[illegible]

The somewhat suggestive hour glass outline can be noted on cystoscopy in cases of true trigonal obstruction. It has been found that this form is present, however, only when the bladder is partially filled with fluid and the interureteric bar is not in this way put on a stretch. In these cases it has been further noted that this trigonal pull from either side is overcome entirely when the fluid is allowed to run into the bladder through the irrigating cystoscope until the bladder is filled to its capacity. The disappearance of the somewhat characteristic hour glass outline on distention suggested that a cystographic study of this condition should be of value. Corroborating the cystoscopic impression in these cases of true obstructing trigons, we have been able to demonstrate the suggestive hour glass form when the bladder is only partially filled with a shadow-casting fluid. In accomplishing this, we have first determined the bladder capacity with sterile water, then filled the bladder two thirds full of sodium iodid, and taken a cystogram. As a further step in the verification of our cystoscopic findings, we have filled the bladder to its capacity and taken a second cystogram. The second view shows that the bladder outline is then spherical, and the lateral pull of the hypertrophied bar is obliterated. In the cases in which operation has been performed, a subsequent cystogram with the bladder two thirds full shows the bladder outline to be normal.

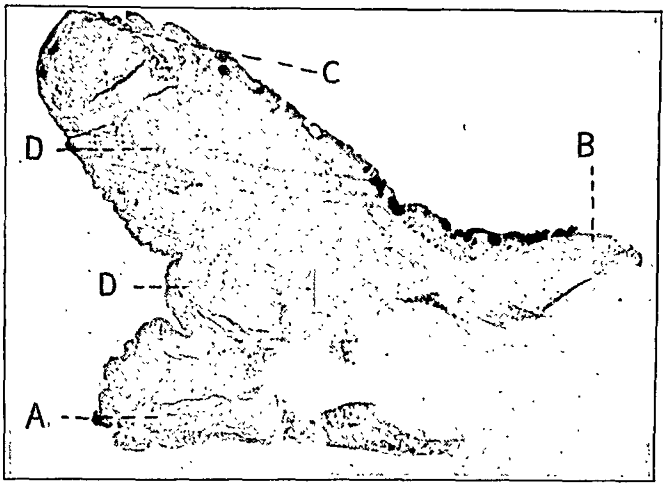

Fig. 6.—Transverse section through the trigon; Type 1 hypertrophy (operative specimen): *A*, floor of bladder beyond the trigon (bas-fond); *B*, apex of trigon; *C*, elevated trigonal ridge (interureteric ligament, "Mercier's bar"); *D*, hypertrophied muscle bundles.

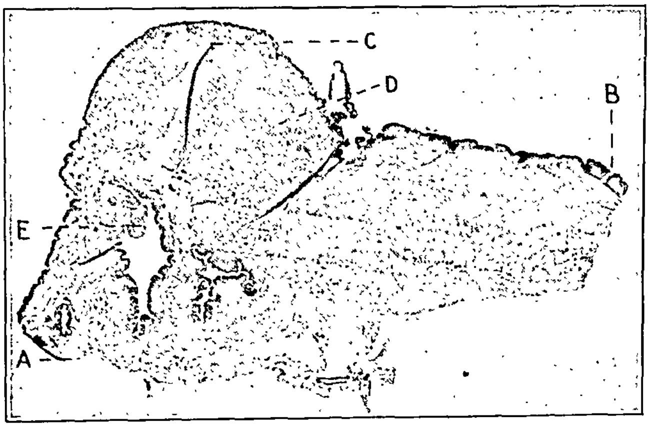

Fig. 7.—Transverse section through the trigon; Type 2 hypertrophy (operative specimen): *A*, floor of bladder beyond the trigon (bas-fond); *B*, apex of trigon; *C*, elevated trigonal ridge (interureteric ligament, "Mercier's bar"); *D*, hypertrophied muscle bundles; *E*, hypertrophied gland tubules—probably accessory to those of the Holmes group (true Holmes tubules are situated much nearer the apex of the trigon).

The method of management of the true obstructive trigon is entirely surgical. As the study of Young and Wesson points out, the trigon may be divided by suitable instruments entirely through the urethra, or may be similarly divided or partially excised through a perineal urethrotomy in the membranous urethra. Thirdly, it may be approached suprapubically, and either divided or excised. The last procedure is, to my mind, the method of choice. It insures perfect exposure, complete hemostasis (and the bleeding is considerable), and the sides of the trigon (Bell's muscle) need never be injured. It has been my practice to remove a wedge-shaped piece of tissue comprising about the middle third of the trigon; thus making the trigon remaining flat and on a level with the bladder floor. The cut edges on either side are always closed by a continuous plain catgut suture to control bleeding, and the bladder closed about a drainage tube, which remains in place for a week or ten days.

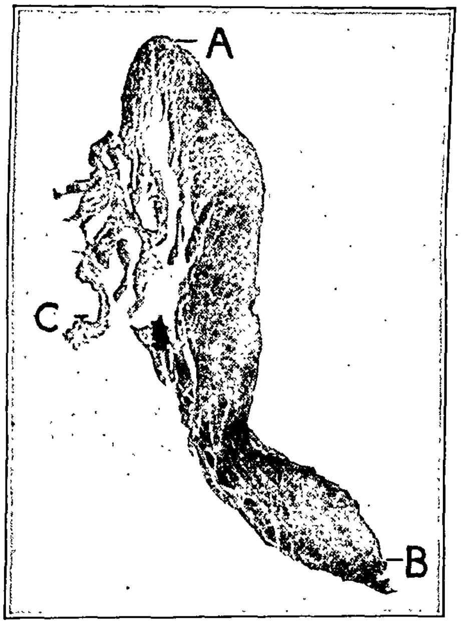

Fig. 8.—Transverse section through the trigon; Type 3; dissecting trigon: *A*, elevated trigonal ridge (interureteric ligament not hypertrophied); *B*, apex of trigon; *C*, base of bladder beyond the trigon, site of a deep but narrow bas-fond (specimen partly broken in embedding and cutting).

494 Franklin Street.

ABSTRACT OF DISCUSSION

Dr. M. B. Wesson, San Francisco: It is generally accepted that trigonal hypertrophy is a clinical entity, and Dr. Watson has clearly shown that there is a pathologic basis for such a view. The only phase of the question on which there is any difference of opinion is the method of surgical treatment. After the cause of the urethral obstruction has been eliminated, the pouch beneath the trigon must be removed. Young's method is to cut Mercier's bar and extend the incision to the vesical orifice, leaving intact Bell's muscles. Last year we found in the clinic an hypertrophied trigon and beneath it an anomalous septum, which was removed along with the redundant mucous membrane, and the cut edges of the trigon were then reapproximated so as to restore Mercier's bar. I think this is the operation of choice as the pouch is removed, and the trigon restored to its original condition. The ideal striven for is to restore the base of the bladder to its normal condition.

Dr. C. E. Burford, St. Louis: I was anxious to see some pictures following operation to know whether after full dissection and reuniting there was still pull on the trigon, or whether that was done away with. This is something absolutely new. While we have recognized these things with the cystoscope, we have not seen any pathologic specimens presented before.

Dr. Terry M. Townsend, New York: Dr. Watson's paper strikes most forcibly all who deal with urinary obstruction. He clarifies a pathologic condition that undoubtedly may be and has been confused with the median bar, but the relief of which cannot be accomplished with any punch operation with which I am familiar. I have now in mind patients on whom I have performed multiple operations in the endeavor to relieve their urinary obstruction but who are still carrying residual urine, so far as I know. I believe they suffered from a surgical condition of the trigon and could have been cured by the operative measures outlined by Dr. Watson.

Dr. Oliver Lyons, Denver: I had occasion to operate on a rather large diverticulum of the bladder. There was something like 17 or 18 ounces of residual urine at the time of operation, and the same amount persisted after operation. I did a cystoscopy. The man was in his early thirties. I repeated the examination several times before I could make myself believe that the condition Dr. Watson presented was the cause of the residual urine. That was soon after the operation. I thought I would try some milder means of treatment, and so I used fulguration. After two fulgurations the man was able to empty the bladder completely. I am sorry to say that the cystogram did not show anything, either before or after operation, except a large diverticulum.

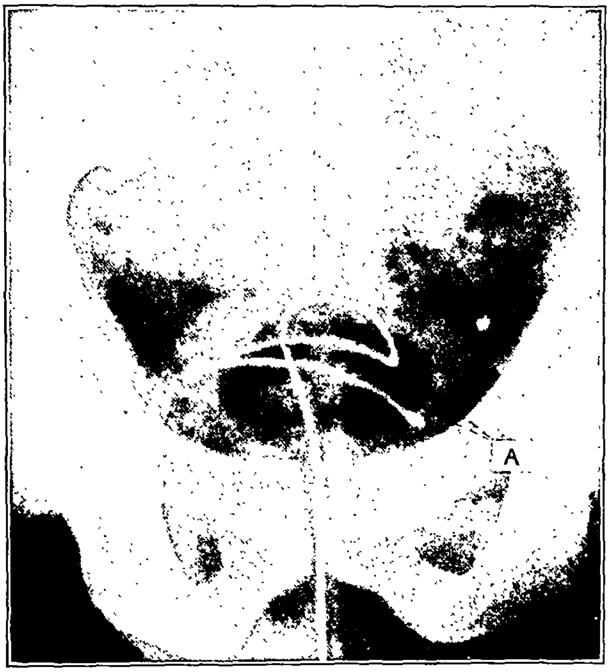

Fig. 9.—Plain roentgenogram of bladder region showing the ureteral catheter coiled in the bladder beyond the enlarged trigon: *A*, loop of the ureteral catheter in the bas-fond beyond the hypertrophied and obstructing trigonal ridge.

Dr. W. J. Wallace, Oklahoma: The point I am most interested in is the end-result, and when Dr. Watson closes I hope he will touch specifically on that feature.

Dr. Herman L. Kretschmer, Chicago: The point I am particularly interested in and one on which I think we should dwell particularly in the discussion is the question of other associated lesions. One illustration showed hypertrophy of the trigon in the presence of median lobe enlargemen, and a small lateral lobe. I think that, in our enthusiasm, we may get away from fundamental principles. Hypertrophy of the trigon means obstruction just the same as hypertrophy elsewhere, and it seems to me that we should get down to determining the cause of the obstruction. We should not do a trigon resection and stop there, but should search for obstructing lesions. It seems to me that some of them may be attributed to the presence of small lobe hypertrophies, which we must remove at the time we excise the trigon. It seems that the end-results are what we are looking for, and if we

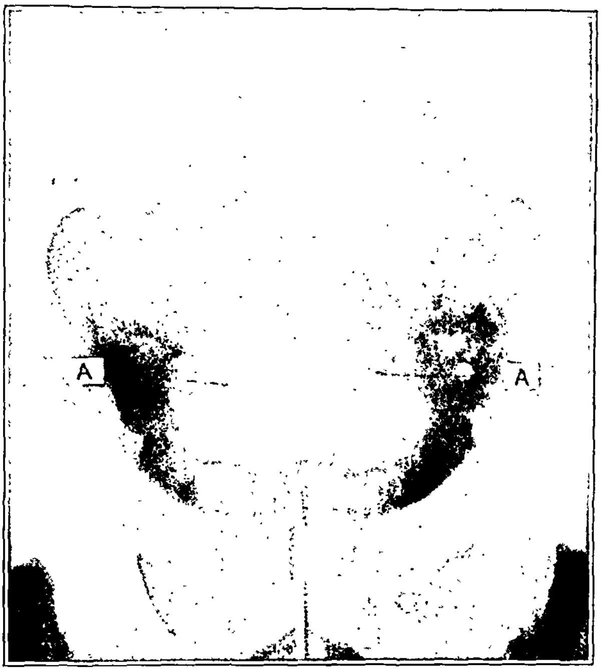

Fig. 10.—Cystogram of patient in Figure 9, showing bladder partially filled with 10 per cent. sodium iodid solution: *A*, site of extremities of hypertrophied trigon exerting a lateral pull sufficient to distort the bladder outline characteristically.

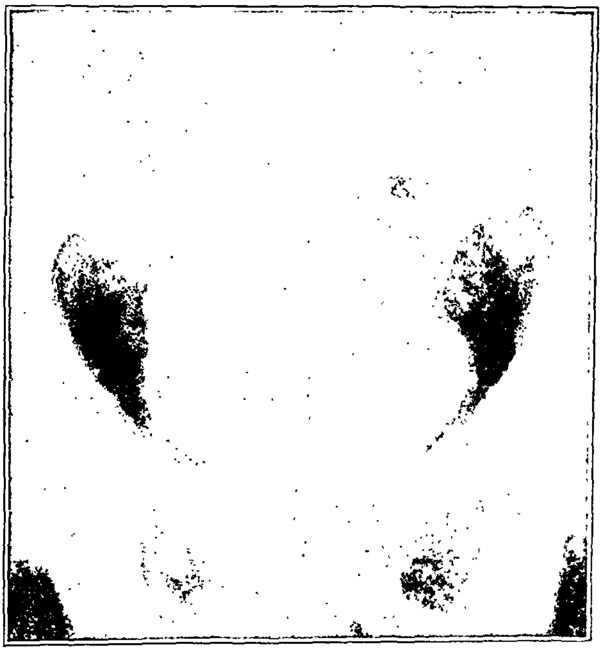

Fig. 11.—Cystogram of patient in Figure 10, showing bladder completely filled with 10 per cent. sodium iodid solution. By filling the bladder to capacity, the lateral pull of the hypertrophied trigon is for the moment overcome and the bladder outline is normal.

excise the trigon and do not relieve the obstruction it is evident that we have overlooked something. The big thing is to look for the obstruction that causes the hypertrophy of the trigon. Dr. Watson said that one patient had had a prostatectomy. I should like to know what, if any, operations had been done in the other two cases before he saw them.

Dr. E. M. Watson, Buffalo: The lesion that causes the hypertrophy is important, but we do not see it very often. My present experience is with only a few cases; I have two patients at present that have not come to operation, but I can recall others that unquestionably had something of this sort. While our arguments are based on only four cases, it is a start, and in the future we can all look for them and in that way accumulate more reliable data. The question of end-results is, of course, the main thing. The question of the mechanism of urination is still a little obscure, but the work of Wesson and Young makes us feel that if we can preserve the sides of the trigon—if we have that little muscle (Bell's muscle) extending down along the trigon—it does much to preserve the function of urination. Two of my patients emptied their bladder down to 2 c.c. from a large residuum, and the others to 10 c.c. from 100 c.c. The thing of importance is to leave the muscle of Bell, the extreme lateral margin of the trigon, and take out only the little ridge that runs between the ureteral orifices, leaving the muscle on either side. The little ridge on the side is only a potential thing, and becomes less as time passes. I think that the end-results have been very satisfactory. We have not done anything to interfere with urination, but to relieve something higher up than the vesical orifice. Dr. Kretschmer's remarks about the presence of the obstructions in the urethra are very important. To my mind the enlargement of the trigon is secondary to some obstructive lesion toward the outside, beyond the trigon. That must be removed first to relieve these patients; and when we do this, the hypertrophied trigon must also be removed because it has become an obstructing lesion. When we have a definite pathologic entity forming a bridge across there it does not disappear of itself. One of these patients had a successful prostatectomy, but the frequency of urination persisted as well as the obstruction, and until we removed the little bridge he was not relieved. Two of the patients had strictures, but a No. 20 sound could be passed into the bladder. Another patient had a punch operation ten years before, but the obstruction still persisted. I think that we must look on this condition as a secondary obstruction.

The Unmarried.—In the "great unmarried" there are numerous hoboes, vagrants, fallen women, and human derelicts of all sorts. There is also an alarmingly high percentage of female college graduates, and numerous other women of high intelligence and character who have qualified themselves to earn a comfortable independent living.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

THE SECOND GREAT TYPE OF CHRONIC ARTHRITIS

FOURTH STUDY *

LEONARD W. ELY, M.D.
SAN FRANCISCO

In several papers I have set forth the results of investigations into the second great type of chronic arthritis,[1] which may be thus recapitulated:

It is a chronic form of arthritis recognized roentgenographically and post mortem by the presence of cartilaginous and bony outgrowths at the margins of the articular cartilages, at or about the lines of attachment of the capsule. It is very frequent in its occurrence, wide in its distribution, and of ancient origin. Skeletons unearthed in Egypt by archeologists show its characteristic changes. It is known under various names. Th Germans, who in moder times first established its clinical identity, call it arthritis deformans; the English call it osteo-arthritis; Goldthwait called it hypertrophic arthritis; Nichols and Richardson called it degenerative arthritis. This is the senile arthritis of some writers, the "chronic rheumatism" of the elderly. When it occurs in the terminal interphalangeal joints of the hands, it is known as Heberden's nodes, and is often mistaken for gout. It is known by many other names by other writers.

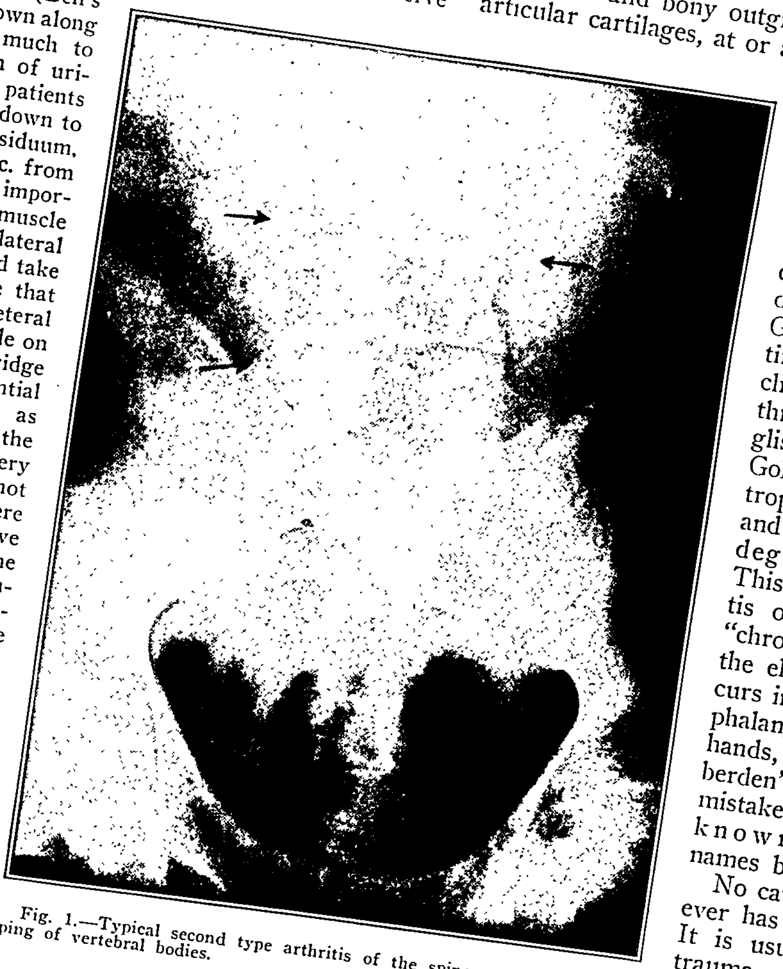

Fig. 1.—Typical second type arthritis of the spine: spurring and lipping of vertebral bodies.

No cause of the disease ever has been established. It is usually ascribed to trauma, either to one severe trauma, or to the habitual trauma of laborious occupation, but I have tried to show that trauma could not possibly be the cause. Infection has been advanced as a cause, but never has been demonstrated. Many observers think that emotional and digestive disturbances, while not directly the cause, nevertheless bear some causal relationship to the exacerbations of the disease. In 1920, 1921 and 1922 I showed that the disease occurred almost exclusively in persons who had infection in the alveolar processes of their jaws. In 1922, Kofoid and Swezy found *Ameba histolytica* in the marrow of one of my specimens, and Barrow found it in the stools of one of my patients.

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* From the Stanford University School of Medicine.

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

*Owing to lack of space this article is abbreviated in The Journal by the omission of a table. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Ely, L. W.: The Great Second Type of Chronic Arthritis, Arch. Surg. **1:** 158 (July) 1920; Further Studies: California State J. M. **19:** 415 (Oct.) 1921; Third Study: ibid **20:** 329 (Oct.) 1922. Ely, L. W.; Reed, A. C., and Wyckoff, H. A.: The Amoeba as the Cause of the Second Great Type of Chronic Arthritis, ibid. **20:** 59 (Feb.) 1922.

The disease is essentially one of middle and advanced age. It occurs occasionally in the third decade. As observed clinically, it is most frequent in the fifth, sixth and seventh decades. It never occurs in childhood. Arthritis deformans juvenilis is a misnomer. It is found in persons of most diverse occupations, and in those of all walks of life, rich and poor. It is sometimes seen in one joint only, sometimes in many joints. Often it gives symptoms in one joint alone, though existing in many joints. In other words, it may exist indefinitely without giving symptoms. In the orthopedic clinic at Stanford it is by far the most frequent disease with which we have to deal. Established always with the roentgen rays, its diagnosis comprises more than one tenth of the diagnoses in our clinic. A heavy proportion of bones from the dissecting room show the characteristic changes.[2]

The gross pathologic changes, those on which the diagnosis is made, have been known for many years. They are, in brief, bony and cartilaginous outgrowths at the margin of the articular cartilages—spurring, lipping, border exostoses—wearing away of the joint cartilage, leaving the underlying bone bare, eburnation and grooving of this bone in the line of joint motion, and thickening and villous proliferation of the synovial membrane. As a result of these changes, the joint becomes deformed and distorted, but no union of the articulating bones, whether by bone or by fibrous tissue, practically ever occurs, except in the spine. The appearance of these joints is entirely different from that of a joint invaded by a bacterial organism. The two can be distinguished easily by the naked eye.

A few investigators have described the histologic changes. Nichols and Richardson's[3] description is classic. The joint cartilage is irregular in thickness, and markedly so in structure. It is fibrillated and calcified. Its cells are swollen. Parts of the cartilage may be ossified. The underlying bone is thickened and dense. The marrow is fatty and fibrous. The synovial membrane is thickened, fibrous, and is thrown into villi. Several observers have noted cyst formation in the bone in the region of the joint.

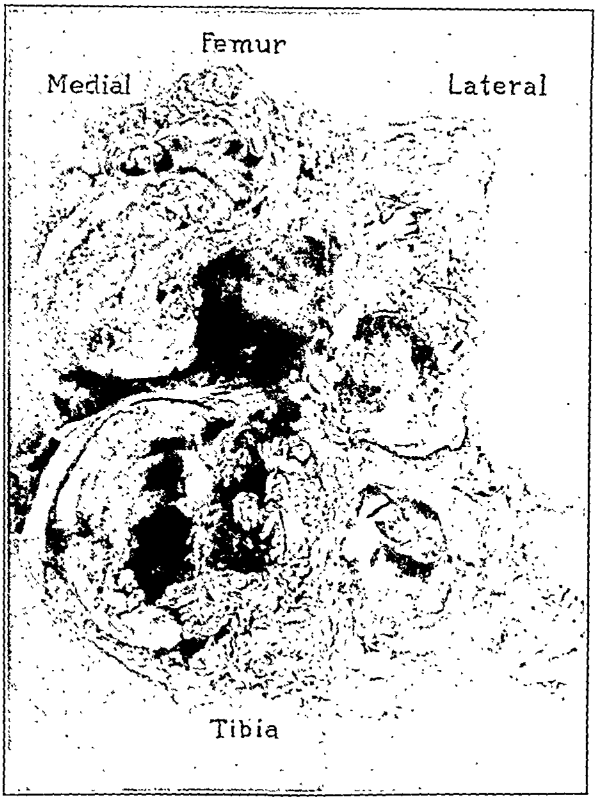

Fig. 2.—Resected specimen of second type arthritis of the knee: new bone and cartilage at circumference of joint; irregularity of articular surfaces; proliferation and villous formations of synovial membrane.

The baffling thing about all these pathologic features was the absence of a key to them. No one could say why they occurred. Given the original tubercle in the bone marrow, for instance, one can easily trace the entire sequence of events in a tuberculous joint, but in this type of arthritis the case was entirely different.

Three years ago I called attention to the areas of aseptic necrosis in the bone marrow in the vicinity of the joint, and attributed to them the prime rôle in the pathology. Further investigations have confirmed this view. The problem then was to find the organism responsible for these areas of necrosis, and Barrow, Kofoid and Swezy have indicated the direction which the path to the solution would take. To these areas of aseptic necrosis is probably due the fracture of the femoral neck in the elderly, as well as the frequency of nonunion following it. The stiff, ankylosed, painful joints following intra-articular fractures in the elderly are probably caused by the same thing.

The symptoms are those of a low grade chronic inflammation; namely, stiffness, limitation of motion, and often swelling and deformity. Pain may be absent or present. As a rule, it is not severe, unless aggravated by injury. The joint is to be viewed as a damaged machine. It is easily sprained or strained, and then is wont to become painful. When the spine is affected, the pain is referred out along the spinal nerves, and is usually diagnosed as myalgia, neuralgia, neuritis, radiculitis, myositis or fibrositis. A very large proportion of the so-called sciaticas owe their origin to spinal arthritis. Roentgen films show the characteristic lesions in the spine, and the symptoms yield to appropriate treatment.

The diagnosis can be made with almost complete certainty with the aid of the roentgen rays. These show spurring and lipping at the circumference of the joint cartilage. This spurring and lipping is practically never seen in other forms of arthritis except occasionally in arthritis of the first type that has been very chronic and has lasted a long time, especially in the feet, and once in a while in tuberculosis of the spine.

Before I take up the subject of treatment, it may be well to give an analysis of the cases seen at the Stanford clinic during the past year. The diagnosis was made in every instance with the roentgen ray. When doubt existed, the case was thrown out. There were 109 patients, fifty-four of whom were men and fifty-five women. This proportion differs from the three preceding series, in which the men [illegible] utnumbere[illegible] th[illegible] women about two to on [illegible] e yo [illegible] patie [illegible] e oldest, 76. Ten were in the fourth decade, thirty in the fifth, forty in the sixth, twenty-two in the seventh, and seven in the eighth. Infection in the alveolar processes of the jaws was present in sixty-one, and probably present in twenty-three. In three it was not noted. Twenty of the patients were edentulous; in one of them, alveolar infection had been demonstrated previously in the clinic. Two had lost almost all their teeth, but had no infection about the remainder. The dental part of the problem has been in the hands of Dr. John L. Campbell, head of the dental department of the Stanford clinics, to whose skill and interest much of our results are due. The presence of infection was determined with the roentgen rays. Many of the patients refused to have roentgenograms taken. Then the infection could be noted only as probable. In the edentulous patients and in those who had lost most of their teeth, previous infection is almost certain.

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[2] Ely, L. W.: A Study of One Hundred Dry Bones Sawn in the Laboratory: Bone and Joint Studies, I, Stanford University, California, 1916, published by the university.

[3] Nichols, E. H., and Richardson, F. L.: Arthritis Deformans, Jour. M. Res. **21**: 149, 1909.

During the past year an attempt has been made to consider the problem of this disease in relation to intestinal parasites. Dr. Harry Wyckoff and I have made the study a common one. Dr. Wyckoff has been in charge of the laboratory work. The attempt has not been altogether successful. Many of the patients would not submit to the examination, and many would not see it through.

Dr. Wyckoff, who conducted the search for intestinal parasites, reported that although he was able to induce only thirty-six patients of the series to submit stools for examination, and although many of these brought but one specimen, nevertheless in fourteen of the thirty-six, or 38.9 per cent., intestinal parasites were demonstrated. The positive findings were protozoa in all cases. *Giardia intestinalis* was found once, *Chilomastix mesnili* once. The rest were amebas of various species, *Ameba coli* predominating. The percentage of positive findings increased as the search progressed. This is in accord with the statement of other parasitologists, to the effect that the more carefully and thoroughly the search is made, the more often will parasites be found. In 50 per cent. of the positive cases more than one stool examination was necessary before parasites were found, while in nearly 50 per cent. of the negative cases but one stool was submitted for examination. Over 73 per cent. of the negative cases had not more than two stool examinations. It is not uncommon to examine four or more stools from one patient before parasites are found. With better cooperation on the part of patients, the percentage of positive findings in the stools would probably be far higher.

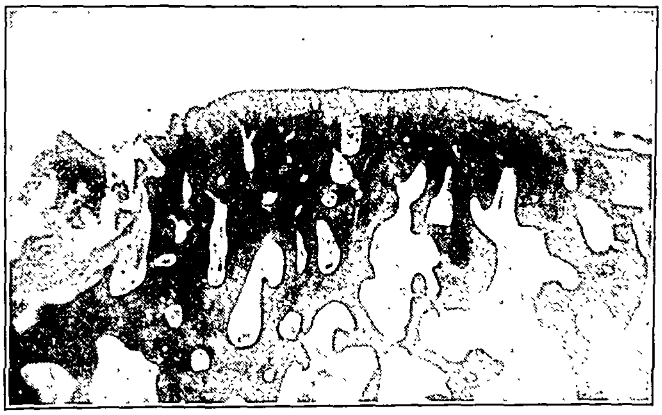

Fig. 3.—Stained slide of a section of the end of a bone, under low power: the cartilage is gone, and the thickened, "eburnated" bone itself forms the articular surface; the joint is hopelessly damaged, for no treatment will ever restore the articular cartilage.

I have had one operative case during the year, that of Patient 236, a porter, aged 60 years. This was a severe case of arthritis of the ankle with painful ankylosis, following a Pott's fracture. I resected the talus in the presence of Drs. Swezy, Wyckoff and Gunn, and submitted the specimen to them for examination immediately after the operation. It contained the usual necrotic cavity in the bone, but no parasites were found in it. My experimental work has been inconclusive.

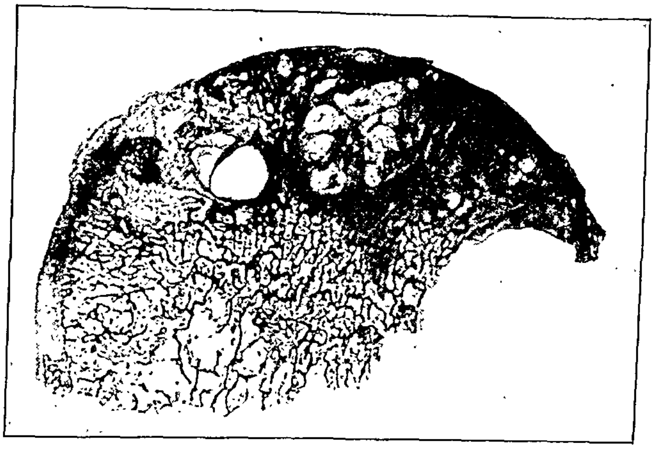

Fig. 4.—Stained slide of a section through the head of the femur: The joint surface is rough, and the cartilage has disappeared from most of it; at the left the articular cartilage persists, but its ossification evidently has begun; some of the cavities in the femur head are cysts, some are filled with fibrous tissue; bone destruction predominates here, rather than bone production; this, contrary to the prevailing idea, is the rule in this type of arthritis; these cavities can usually be distinguished in the roentgen film, if they are sought.

CONCLUSION

Chronic arthritis of the great second type is caused by some form of nonbacterial organism, probably a protozoon, which, domiciled in the gastro-intestinal tract, gains access to the system through the foci of osteomyelitis about the roots of the teeth, and causes an aseptic necrosis in the marrow in the region of the joints. As the result of this necrosis, marked bony and cartilaginous changes take place, which distinguish the disease clinically, roentgenographically, and in the laboratory. The disease is more frequent in men than in women as clinically observed, is essentially one of middle and late life, never occurs before the third decade, is widely distributed in its occurrence, and occurs in persons of all occupations and walks of life. It is usually multiple, though it may give symptoms in one joint alone, and may exist indefinitely without symptoms. It is probably responsible for fracture of the neck of the femur in the elderly, and for the stiff, painful arthritis that often follows their intra-articular fractures. It deforms the joints so that they are easily sprained, but practically never causes a bony ankylosis except in the spine. It is responsible for most of the cases of so-called neuritis, sciatica, myalgia, myositis, fibrositis, radiculitis and lumbago. Rest, heat and appropriate diet usually improve the symptoms, but the disease itself is best treated by the removal of dead teeth, and by the eradication of intestinal parasites. The search for parasites should be conducted by a skilled parasitologist. If not, its results will be disappointing. Our results indicate that no one protozoon is responsible. It may be any one of a number.

ABSTRACT OF DISCUSSION

DR. JOHN V. BARROW, Los Angeles: These arthritis cases all harbor intestinal protozoa of some form: amebas, *Chilomastix*, *Giardia*, trichomonads, etc. The pathologist's efficiency in finding protozoa can be checked by his ability to demonstrate the presence of these organisms in these cases, for they are 100 per cent. present. In treating these cases, the first effort is to stop the forward process of the disease. When this is done, the orthopedist can accomplish lasting and excellent results. The work of ridding the patient of intestinal infestation comes first; and, as this is accomplished, the patient improves. The therapeutic test thereby strengthens the laboratory presumption. The medical as well as the surgical management is chronic. A few doses of ipecac, no matter how efficacious, will not cure. Persistence and clinical grit will win.

DR. LEONARD W. ELY, San Francisco: We have opened up a problem here whose solution will require a great amount of work and patience, and will demand the efforts, not of one man alone, but of a team. I would not have it thought for a moment that I regard my case as proved. What I do want recognized is, first, that this disease is entirely different from all the bacterial arthritides. This conclusion will be forced on any one who will take the trouble to cut up his material in the laboratory, and not throw it away because no money is to be made by its examination. Clinical experience rarely solves the hard problems in medicine. The second point I wish to make is that the tonsils and the deep urethra have nothing to do with this type of arthritis, and that the teeth have nothing to do with the first great type of arthritis—the bacterial type. This will save our patients from ruthless extraction of their teeth. The third point is not to attempt to have stool examinations done indifferently by a novice. We owe what advancement we are making at Stanford to the skill and interest of our laboratory chief—Dr. Wyckoff. The search for intestinal parasites is something that requires special training and great patience. I think that in this work we have struck a very important trail, and hope to follow it through to the end. The solution of the problem is probably tied up with that of Paget's deforming osteomyelitis, osteitis fibrosa, bone cysts, and possibly new growths. The chief thing, of course, is to find the organisms in the bone marrow.

OCULAR PHENOMENA PRODUCED BY INTRACRANIAL LESIONS INVOLVING OPTIC TRACTS NEAR THE CHIASM *

WALTER I. LILLIE, M.D.
ROCHESTER, MINN.

Cases of intracranial lesions affecting the chiasm have been studied in order to ascertain whether some ophthalmologic method of examination could be found to enable the ophthalmologist to determine more definitely the origin or position of the lesion.

The cases reported here have been classified into four groups, according to the origin of the lesion, in order to show the striking similarity in the ocular phenomena and the changes in the sella turcica as revealed by the roentgenogram. The four groups are:

Group 1. Pituitary tumors: (a) without glandular disturbances; (*b*) with acromegaly, and (*c*) with diabetes insipidus.

Group 2. Intracranial tumors, not of pituitary origin, affecting the chiasm.

Group 3. Nasopharyngeal tumors affecting the chiasm.

Group 4. Syphilitic basal meningitis affecting the chiasm.

In the series of forty-six cases of pituitary tumors, twenty-seven did not show glandular disturbances (Group 1 *a*, Fig. 1); seventeen were definitely acromegalic (Group 1 *b*, Figs. 2 and 3), and in two diabetes insipidus was found (Group 1 *c*, Figs. 4 and 5).

It is difficult to classify intracranial tumors not of pituitary origin, as there are so many types of lesions and so many locations; yet all produce more or less typical changes in the chiasmal field. In the series of twelve cases, six of which have been previously reported,[1] the ophthalmologic changes were practically the same as those found in pituitary tumors (Figs. 6 and 7).

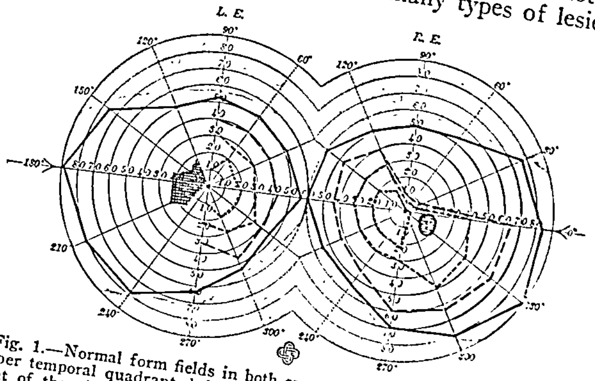

Fig. 1.—Normal form fields in both eyes with a 2 millimeter test object. Upper temporal quadrant defect for all colors in the right eye. Enlargement of the physiologic blind spot. Definite temporal hemianopia in the left eye for all colors. Marked enlargement of the physiologic blind spot.

In all of the four cases of nasopharyngeal tumors, certain typical chiasmal field changes were present (Figs. 8 and 9).

In the two cases of syphilitic basal meningitis affecting the chiasm, the field changes were also typical of a chiasmal involvement (Figs. 10 and 11).

OPHTHALMOSCOPIC CHANGES

The ophthalmoscopic changes can be divided readily into four main divisions: (1) changes in visual acuity; (2) changes in the optic disk; (3) changes in the perimetric field, and (4) ocular motor changes.

Changes in Visual Acuity.—Practically all the patients in this series, regardless of the exact cause or location of the lesion, came to the clinic because of failing or loss of vision in one or both eyes. The duration of the visual changes did not vary to any great extent in the different types of lesions. At least there was not enough difference in the duration of the changes to make it pathognomonic of any one group. The loss of vision is usually slow, as shown by the histories obtained from reliable sources, except perhaps in the scotomatous types of field changes, which early encroach on the macular area. The gradual loss of vision is probably the reason so many patients do not consult a physician until definite hemianopia has developed, as usually a temporal quadrant still remains intact, or islands of temporal vision are still present. When the temporal fields are lost, the changes usually have encroached on a portion of the macular area, so that the visual changes are noticed by the patient. The one point that stands out consistently is that the vision does not improve to any appreciable extent by refraction, even though there is an error of one or more diopters, either spherical or cylindric. In this series of cases, in which there was opportunity to study the changes of vision before and after operation, the improvement was always in the cases in which there was a normal fundus or pallor of the disks without loss of substance. Neither the visual acuity nor the fields in an eye that showed a definite simple optic atrophy improved to any appreciable extent following operation.

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* From the Section on Ophthalmology, Mayo Clinic.

* Abstract of thesis submitted to the Faculty of the Graduate School of the University of Minnesota in partial fulfilment of the requirements for the degree of Master of Science in Ophthalmology, December, 1922. The complete thesis was read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923, and will appear in full in the Transactions of the Section.

[1] Lillie, W. I.: Ocular Phenomena in Cases of Chiasmal Lesions Not of Pituitary Origin: Report of Six Cases, Surg. Clin. N. Am. **1**: 1363-1380 (Oct.) 1921.

Changes in the Optic Disk.—The typical ophthalmoscopic appearance of the disks has been described by Benedict,[2] and the pallor without loss of substance is such a common finding that the expression should be universally used instead of the so-called primary optic atrophy so often recorded. This is in accord with the views of Walker and Cushing:[3]

> Despite the so-called atrophic pallor of the disks in patients having visual-field defects resulting from lesions in the chiasmal regions, the histologic examination of the nerves fails to show the expected degree of fiber degeneration unless the process has been of long duration.
>
> Our cases serve to illustrate the fact that in the presence of chiasmal pressure of known long duration, associated with sharply cut hemianopias, even when to the ophthalmoscope the nerve shows the pallor of presumed atrophy, there may be no corresponding sharp delineation of the areas of atrophy in the cross section of the nerve.

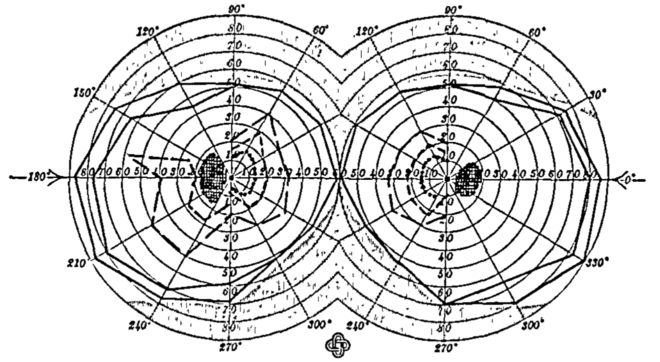

Fig. 2.—Slight contraction of the form field in the upper temporal quadrant of each eye with 2 and 6 millimeter test objects. Definite temporal hemianopia in the right eye for all colors. Definite hemianopia for red and green, with preservation of the lower temporal quadrant for blue, in the left eye. Bilateral enlargement of the physiologic blind spot.

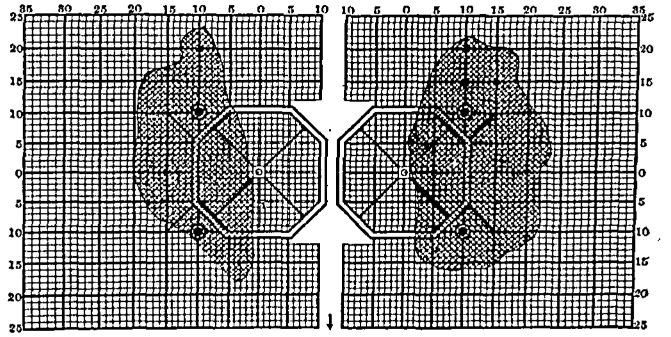

Fig. 3 (Same case as Fig. 2).—Definite bilateral enlargement of the physiologic blind spot recorded on Lloyd's stereocampimeter chart.

When one stops to consider the frequency with which the perimetric fields improve or return to normal following the removal of the pressure at the chiasm, it is apparent that the loss of function is purely a "block" and not due to atrophy. In cases in which the pressure has been of such long duration as to produce a simple atrophy of the optic nerves, the perimetric fields do not improve following operation.

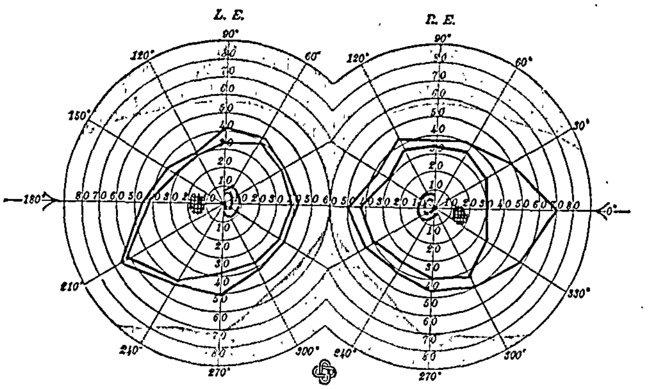

Fig. 4.—Marked temporal contraction of the form fields of both eyes with 1 and 2 millimeter test objects. Definite bitemporal hemianopia for blue and red, with complete loss of vision for green. Bilateral enlargement of the physiologic blind spot.

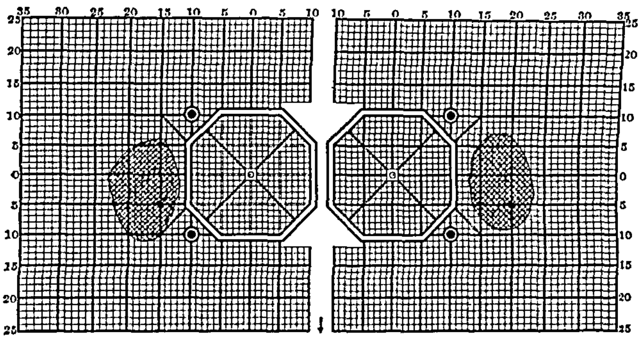

Fig. 5 (Same case as Fig. 4).—Bilateral enlargement of the physiologic blind spot recorded on Lloyd's stereocampimeter chart.

In many of the cases reported in this paper, the examinations following operation revealed improvement in the vision and perimetric fields of patients whose disks were originally reported "pallor without loss of substance"; while those whose disks were reported "simple optic atrophy" generally did not improve either in vision or in perimetric fields following operation. Again, in certain cases, the visual and perimetric field changes were out of proportion in respect to the appearance of the disks, especially in one case in which disks were normal and the vision was nil in each eye.

Changes in Perimetric Fields.—The perimetric field defects found in the cases reported here may be classified as follows: (1) bitemporal hemianopia, partial or complete; (2) homonymous hemianopia, partial or complete; (3) temporal hemianopia in one eye, complete loss of vision in the other; (4) quadrant defects, one or both eyes; (5) scotomatous field defects, and (6) normal fields.

Bitemporal Hemianopia: In thirty-two of the cases from all groups there was bitemporal hemianopia, either partial or complete. The hemianopia varied from color defect in one or both eyes, with an early enlargement of the physiologic blind spot, to more definite hemianopic color and form defects. Almost all known types of defects were found, and in some cases marked variation in the fields was noted on repeated examinations. In nearly all the cases in which the blind spot was recorded, an enlargement was found. Some of the fields were within normal limits, except for slight quadrant defects in the green-color fields.

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[2] Benedict, W. L.: Early Diagnosis of Pituitary Tumor with Ocular Phenomena, Am. J. Ophth. 3: 571-584 (Aug.) 1920.

[3] Walker, C. B., and Cushing, Harvey: Studies of Optic Nerve Atrophy in Association with Chiasmal Lesions, Arch. Ophth. 45: 407-437 (Sept. 16) 1916.

Homonymous Hemianopia: In seven of the cases there was the homonymous type of hemianopia, either partial or complete, varying from definite homonymous hemianopia for forms and colors to a homonymous defect for one color only. These defects also varied on repeated examinations.

Temporal Hemianopia: In ten of the cases there was temporal hemianopia in one eye, and complete amaurosis in the other. Varying degrees of contraction of the form and color fields were found, and in some, loss of one or more color fields.

Quadrant Defects: Four of the cases revealed quadrant defects in one or both eyes. These varied from small defects for one or more colors to a definite quadrant defect for form and color. Usually the enlargement of the physiologic blind spot encroached on the field of the color defect.

Scotomatous Field Defects: In twelve of the cases, definite scotomatous changes were noted. The scotomas were usually continuous with the physiologic blind spot; or, if the process had been of long duration, the quadrant or temporal loss of vision was continuous with the physiologic blind spot. Many varieties of temporal defects for form and color accompanied the scotomatous changes. If the fields were taken often, the temporal return of vision usually preceded the shrinking of the scotoma. When the blind spots were carefully charted on the Lloyd stereocampimeter, they were found to be enlarged early in the course of the disease, and the temporal scotomas were always continuous with the blind spots. Also, in the fields in which there were temporal isles of vision, the loss of fields was continuous with the blind spots. This was not found in some of the earlier records and was probably due to faulty technic. The reverse also seems to be true; with the return of visual fields, the enlarged blind spots and scotomas persist, while the form fields return more rapidly.

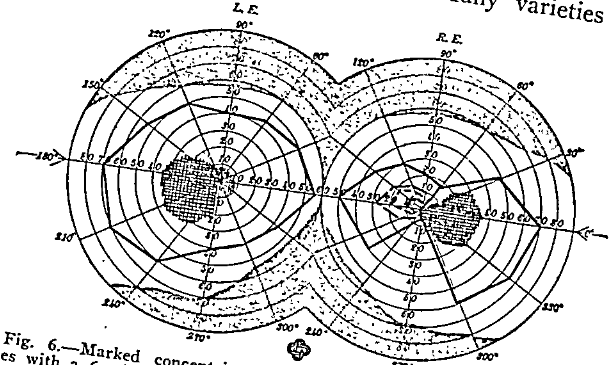

Fig. 6.—Marked concentric contraction of the form fields of both eyes with a 6 millimeter test object. Temporal hemianopia in the right eye with a 2 millimeter test object. The color field of the right eye reveals a definite temporal hemianopia. Color perception is lost in the left eye. The physiologic blind spots are markedly enlarged, and a small central relative scotoma is present in the left eye.

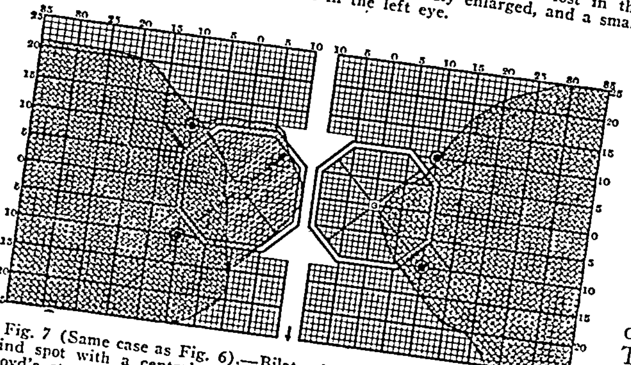

Fig. 7 (Same case as Fig. 6).—Bilateral enlargement of the physiologic blind spot with a central relative scotoma in the left eye, recorded on Lloyd's stereocampimeter chart.

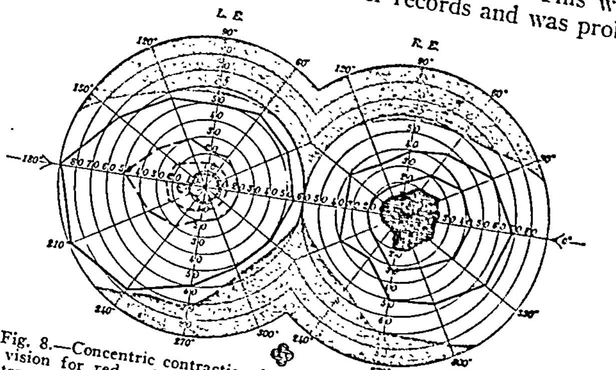

Fig. 8.—Concentric contraction for form and colors, with complete loss of vision for red and green in the right eye. A large central absolute scotoma includes the physiologic blind spot. Normal form and color fields in the left eye.

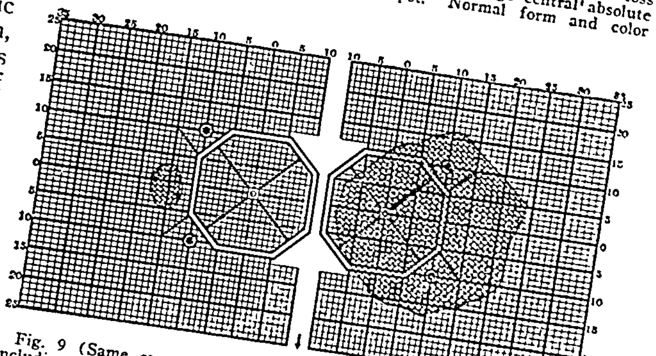

Fig. 9 (Same case as Fig. 8).—The large central absolute scotoma, including the physiologic blind spot in the right eye, recorded on Lloyd's stereocampimeter chart. The physiologic blind spot in the left eye is normal.

Normal Fields: In four of the cases, the perimetric fields were normal, both for form and color. Also, the blind spots were of normal size.

Ocular Motor Changes.—Ocular motor changes were less frequent except in the nasopharyngeal group. Any one or all of the ocular motor nerves may be involved, most commonly the sixth cranial nerve. In thirty of the cases, pupillary disturbances were noted, varying from a slow reaction to a complete internal ophthalmoplegia.

SUMMARY

The roentgenologic findings and ocular phenomena of the six groups are summarized and compared in Table 1.

CONCLUSIONS

1. All but four of the sixty-four patients had some change in visual acuity of one or both eyes.

2. The patients in whom the optic disks were normal in appearance, or who had pallor of the disk without loss of substance, obtained the greatest gain in visual acuity and perimetric fields following surgery.

3. In practically all cases the scotomatous field changes were, at one time or another, continuous with the physiologic blind spot, and the blind spot was almost

always incorporated in the temporal field defect, either for form or for color.

4. The presence or absence of color-field defects was as important as that of form defects.

5. The roentgenograms of the sella turcica were normal in a higher percentage of cases with intracranial lesions, not of pituitary origin, than in those of pituitary origin.

6. All persons suspected of having intracranial lesions affecting the chiasm should have thorough nasopharyngeal examinations.

7. The origin of lesions affecting the chiasm cannot be definitely determined from ophthalmologic examination.

ABSTRACT OF DISCUSSION

Dr. Gilbert Horrax, Boston: Any possible aid we can obtain in differentiating the type of tumors around the chiasm is naturally of immense importance. Tumors of this type, whether they are pituitary in origin or actual tumors of the chiasm, whether they are tumors of the nasopharynx or true adenomas, represent a large proportion of brain tumors, in Cushing's series about 25 per cent. The differential points from the appearance of the disks and the fields are the features that mainly interest ophthalmologists. Atrophy, with or without loss of substance, it seems to me is a term that is used in different ways. So far as the Brigham Hospital clinic is concerned, we cannot differentiate between atrophy with loss of substance and that without loss of substance. We do think we can distinguish between the type of atrophy occurring in tumors around the chiasm and the atrophy occurring in other types of disease—tabetic atrophy, or secondary atrophy following brain tumor. But atrophy with or without loss of substance we cannot differentiate to our own satisfaction, although Dr. Lillie believes this point to be of importance in prognosis. The prognosis, so far as we can determine, depends, chiefly, on how long a block there has been of the optic chiasm. The atrophy resulting from such a block may be complete in a short time, or it may go on for a long time. It is interesting that in charting the scotomas the field defects are always, in Dr. Lillie's experience, continuous with the physiologic blind spot. As to the type of hemianopia, the bitemporal type is more common than the homonymous type. The method of determining the extent of the field defects differs in different schools. We have given up using the color fields and rely on the small test objects designed by Walker, either on the perimeter or on the screen. We find that this gives us results comparable to what Dr. Lillie finds with his colors so far as determining an early hemianopic defect, which is, of course, the consideration of prime importance. The type of tumor that is giving us more trouble than any other in differentiation is the tumor of the optic chiasm itself. This is the group of tumors that Cushing and Martin reported recently in the *Archives of Ophthalmology*, a group that shows certain characteristic findings that separate them from the general group of tumors in this region.

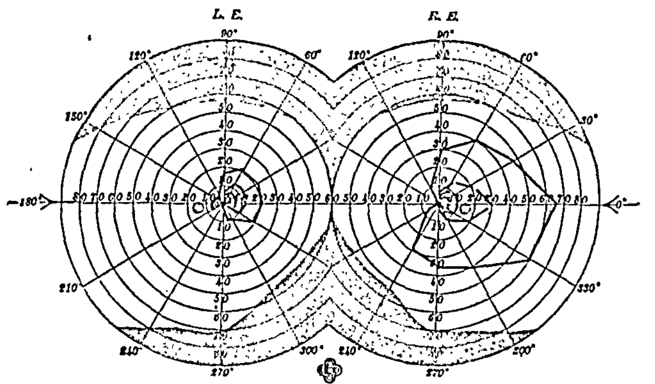

Fig. 10.—Definite homonymous hemianopia in the left eye for form and colors, with a small relative central scotoma.

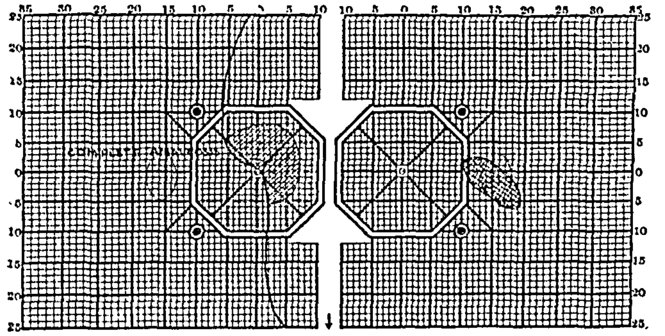

Fig. 11 (Same case as Fig. 10).—Enlargement of the physiologic blind spot in the right eye recorded on Lloyd's stereocampimeter chart. A relative central scotoma in the left eye, with complete amaurosis of the temporal field.

Dr. G. E. de Schweinitz, Philadelphia: Referring for the present to bitemporal hemianopia, associated, for example, with a tumor of the pituitary body, it is well known that the changes that take place in the field in typical instances are not individual types, but constitute stages of an advancing process, and are best studied with serial test objects. Beginning in the upper temporal field, the deformation proceeds downward, and from below upward in the nasal field, or, to use Traquair's description, "progresses round the fixation point clockwise in the right field and counterclockwise in the left." My own investigations confirm those of Traquair and some other observers that the attainment of the ultimate stages is about twice as common in the upper nasal quadrants as in the lower. Such typical development of the stages of progressing bitemporal hemianopia is not, of course, a constant condition. Naturally, departures from these types or stages are frequent, and other combinations are not uncommon. The instability of visual field boundaries in cases of pituitary body disorders, tumors, for example, is well known, and the homonymous hemianopic defects are also well recognized, but are now omitted from consideration. Paracentral scotomas are common and often an early manifestation; they may be bitemporal in form, and expand, as it were, into a large or complete bitemporal defect, meeting a contraction which begins in the temporal periphery. But even when there is little or no change in the upper outer peripheral temporal quadrant, alterations within the 30 degree circle may be observed, and the cecocentral region is recognized as a weak part of the field. It is probable that the very earliest changes are to be discovered over the blind spot, and may be continuous with it. Careful analyses of paracentral scotomas in these circumstances indicate that they also, like the general field, are divisible in quadrants; in short, that these scotomas, to use Traquair's expression, "behave like the general field." These scotomas, as also some of the other field changes, have been attributed to pressure foci in the optic pathways, to traction produced by a growing tumor, to vascular constrictions, which certainly are important factors, and possibly sometimes to a toxic influence on the macular fibers. So-called "typical development" of scotomas is, of course, not a constant one, and many deviations from types are recognized. Most, if not all, of the visual field defects can be detected with small white test objects; but even so, it is not wise to disregard the use of color tests, although the threshold of accuracy with white objects is greater than that of color tests.

Dr. Emory Hill, Richmond, Va.: I should like to ask Dr. Lillie what his experience has been in reference to the so-called "zones of deadened perception," mentioned a number of years ago by Wilbrand, which have not received much attention since. In charting the temporal field one brings in a large white disk, of 10 mm. for example, from the periphery toward the center. This will be recognized first merely as a moving object, but for some distance it is not recognized as a white object. In other words, a relative scotoma exists in the temporal field. This precedes a more definite loss of the temporal field, and in recovery the same thing occurs again—a zone of deadened perception in the periphery.

Dr. Walter I. Lillie, Rochester, Minn.: One of the primary reasons for this paper is that there are many types of chiasmal field changes that are open to discussion. The reason I still continue to use color plates is that in different types of intracranial lesions the mentality of the patient varies considerably. Some patients are more or less dull—and we can show defects much more readily with color than with small objects. When we first started to study the series, we had sixty-two proved cases out of 226 chiasmal lesions. The others we could not use because they were *not* proved, although they gave fields absolutely similar to those I have shown. The sixty-two cases were of various types, but they all showed practically the same type of field changes. The reason we began this study was to see whether we could not say definitely whether a lesion was from above coming down on the chiasm, or from below coming up. This we decided was impossible to show conclusively. We could show that there was a lesion affecting the chiasm, but the site of the lesion could not definitely be ascertained. Undoubtedly what Dr. Hill says is true, but that would be in the very early changes in the chiasm, and we have not found that in our series of cases. Most of our patients had been examined elsewhere, and field defects had been noted or had gone too far to give a simple relative scotoma. There is no question that you will find this scotoma or dimness of vision in any part of the field, depending on where the tumor is located. There is nothing new in the field changes we have presented, except that I want to emphasize that the earliest changes we have found are in the blind spots. The fields were absolutely normal for color and form, but the physiologic blind spot was enlarged. This has been found to be true in chiasmal lesions, and one can feel sure that it is not a case of retrobulbar neuritis.

A PROPOSED CLASSIFICATION OF IRITIS AND IRIDOCYCLITIS *

LEE MASTEN FRANCIS, M.D.
BUFFALO

The question may be asked with great propriety whether another classification of iritis and iridocyclitis is needed or even worthy of consideration. While it may be said that it is not demanded, yet some feel that it is desirable. This concerns, particularly, teachers, who are endeavoring to develop and drive home fundamental truths, but also clinicians, whose most difficult task is frequently diagnosis. Whatever contributes to orderly ways of thinking adds, not only to a better analysis of disease, but to more efficient treatment. Consequently, the subject should interest both teachers and practitioners.

That there is more or less confusion in the arrangement of uveal disease is evident from even a casual review of the various textbooks. That confusion should exist is quite natural because such correlations are the gradual outgrowth of the clinical manifestations of uveal disease as it has been observed since the beginning of medical time, rather than classifications largely based on the causal pathology. To express dissatisfaction is one thing, but to offer constructive criticism is quite another. Yet it does seem as if enough advance has been made to, at least, venture some sort of rearrangement to the end that teaching of uveal disease may be simplified, and possibly its etiologic estimation be brought more in line with established knowledge.

The manifestations of the disease may be classified in several different ways. The two methods of grouping commonly employed are based on its various clinical phases and on causal factors. Of the two, the latter seems more definite, rational and less subject to radical changes.

The continuity and histology of the uveal structures hardly admit of isolated processes in its component structures. There obviously cannot be an iritis without a cyclitis, or a cyclitis without an iritis or choroiditis. From a clinical standpoint, the symptoms of one may predominate and mask lesser changes in the other segments, so that from a practical standpoint separation is usual, depending on the dominant symptoms. It is to be understood, therefore, that when the terms iritis and cyclitis are used, they do not refer to an isolated process.

The possible cause of inflammatory changes in the iris and ciliary body must be due to one or a combination of the following:

Direct injury.
Micro-organisms in the tissues.
The toxic products of infection located elsewhere in the body.
Toxins—chemical or biochemical.
Anaphylactic phenomenon.

If a grouping is contemplated from an etiologic basis, one naturally turns to the laboratory for guidance. Despite the important and constructive experimental work of Stock, Guillary, Rosenow, Brown and Irons, Brown, Irons and Nadler, Lewis, Rosenow and Meisser (reported by Benedict), Woods, Straub, Verhoeff and Lemoine and others, its sum total is relatively little compared to the experimental work that has been done in other and less important medical fields. From a review of the experimental work that has been done by the various observers, certain conclusions may be drawn.

1. When the exciting agent of the uveal disease originates outside the body or the globe, it is borne to the uveal tissues by the blood and lymph streams.
2. The exciting agent travels either as fortuitous emboli, or by the white cells acting as phagocytes; or, if toxic, in solution in the blood or lymph stream.
3. Most inflammatory processes of the iris and ciliary body are due to the presence of organisms themselves in the tissues.
4. The varying degrees of inflammatory reaction depend on the virulence or attenuation of the infection, or to tissue resistance or to both factors.

Probably such terms as "idiopathic" and "primary" should be discarded because misleading and inappropriate. Disease of the uveal tract, in that it originates in the uvea itself, is never primary, but always secondary to disturbance elsewhere. Rheumatism should be confined to true rheumatic fever. The source of such disturbance is either from outside the body or from inside the body; consequently, the terms endogenous and exogenous, which have already been proposed, appear satisfactory.

Maxwell,[1] in 1916, proposed a classification of uveitis which furnishes a satisfactory working basis. Maxwell's contribution is largely drawn on in the following classification:

EXOGENOUS GROUP

1. Direct injury to the uveal structures which may introduce infection or may in the case of foreign material produce chemical irritation (copper, etc.).

ENDOGENOUS GROUP

1. Specific infectious diseases:
    - syphilis
    - gonorrhea
    - tuberculosis
    - influenza
    - malaria
    - pneumonia
    - typhoid
    - typhus
    - the acute exanthems
    - true rheumatic fever
    - septicemia, etc.
2. Focal diseases:
    - conjunctival infections.
    - tonsil infections
    - alveolar infections
    - accessory air passage infections
    - skin infections (furunculosis)
    - gallbladder infections
    - appendical infections
    - areas of infection wherever located
    - sympathetic ophthalmitis(?)

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Maxwell, M. E.: Ophthalmoscope, September, 1916.

3. Toxins:
    A. Autointoxications:
        intestinal putrefactive processes
        menstrual disturbances
        endocrine disturbances—hypothyroidism, etc.
    B. Chemical — Proteins—lens
        Biochemical — sympathetic ophthalmitis (?)
4. Disorders of general metabolism:
    gout
    diabetes
    anemia
5. Anaphylaxis of the uvea:
    sympathetic ophthalmitis (?)

It will be noted that the endogenous group has been divided into five divisions under which the various clinical phases of iritis and iridocyclitis have been placed. Great difficulty is encountered in correlating some of the types because the causal factors are as yet at most, speculative.

The important and well recognized rôle which injury and exposure play is regarded as contributory rather than directly causal. The same may be said of previously existing disease. Certainly, these and possibly other factors reduce the resistance of the parts and possibly sensitize the tissue to organisms and perhaps toxins, which in some instances have a developed affinity for uveal structures. There are certain clinical expressions of iritic inflammations which, according to the present state of information (or lack of it), cannot be accredited to infections. Into this class fall three groups: toxins, disorders of general metabolism, and anaphylaxis of the uvea.

The experimental work of such men as Uhlenhuth, LaGrange, Hektoen, Straub, Woods, Verhoeff and Lemoine, point to the existence of specific toxins. Similarly, the coincidence of uveal disease appearing at the menopause in women, and when associated with probable disturbances of the endocrine balance, has made it appear admissible to place these under a toxic group. Also into this group has been placed intestinal intoxications. That intestinal intoxication plays an important rôle in iritis and iridocyclitis is the conviction of such an astute observer as de Schweinitz. Whether this rôle is contributory or causal is a mooted question. There is strong clinical ground for a separate group due to disturbances of general metabolism, such as gout, diabetes and possibly anemia, in which no specific infection or infective groups have been thus far identified. The question of uveal anaphylaxis is certainly an important and not altogether clear one. Possibly it should not have a separate head. It may be that future investigations will show that anaphylaxis is an equally important factor in all types of uveal disease, one having primarily to do with tissue sensitization and specificity of the exciting agent. In the case of three groups, toxins, general metabolic disturbances and uveal anaphylaxis, future work may show that the various causal factors are, after all, only contributory, merely lowering uveal resistance to organisms normally present in the blood stream.

There is less difficulty in establishing a classification than there is in knowing into which particular category to place certain well defined clinical entities, the precise cause of which has not as yet been established. However, this classification is proposed as a working basis and not because it is considered ideal or final. Any estimate based on imperfect knowledge is sure to be correspondingly faulty and inaccurate. Consequently, what is written today will probably need to be rewritten tomorrow. No attempt has been made to give credit in most instances to sources. In many cases, it is quite impossible to identify the originator of a certain nomenclature.

It is hardly necessary to add that none of the work is original except the arrangement of the material which has been gleaned from many sources.

THE ETIOLOGY OF IRITIS

SECOND SERIES *

ERNEST E. IRONS, M.D.
AND
E. V. L. BROWN, M.D.
CHICAGO

This is a continuation of the study of iritis, of which a series of 100 cases was reported in 1916. The present report includes 100 cases which have been studied by the same methods as in the previous series. These included a careful history and physical examination to determine the presence or absence of syphilis, tuberculosis, gonococcal infection, and infections of the teeth, tonsils, sinuses, prostate, pelvis, or other structures which might give rise to metastatic lesions in joints or eyes. The possibility of invasion of the body by infection entering through mucous membranes without previous residence in a local lesion in the body was considered, and will be discussed below. Laboratory examinations included Wassermann tests, usually controlled by a second laboratory, complement fixation tests for gonococcal infection, roentgenograms of the teeth and sinuses, and of the lungs when there was any question of pulmonary disease. Blood counts and blood cultures, and subcutaneous tuberculin tests after previous determination of sensitiveness by cutaneous tests, were made in suitable cases.

Each patient presents a problem for solution, the ascertainable facts being the history, including the time relations of the onset and recurrence of iritis and infectious processes of the several kinds, the results of physical examination and laboratory study, and the results of treatment directed to the removal or cure of the infections discovered. It is a matter of general experience that the relations of cause and effect may be readily demonstrable in some cases, while in others, several possible causes are present and it may be impossible to state which infection was immediately responsible for the lesion in the eye. Except in the simplest cases, there is thus unavoidably introduced an element of judgment as to which of two or more infections was the cause of the iritis. We have tried to maintain a conservative attitude in drawing conclusions, and when there was reasonable doubt as to which of several causes was responsible, we have placed such cases in the group of combined infections.

The hundred cases in this series are grouped in Table 1, under their probable causative infections so far as the available evidence made this possible.

In patients in whom one infection seemed to be definitely related to the iritis, but in whom the presence of other infections was disclosed by routine examination, the latter infections appear under their appropriate headings—coincident infections. In two cases, a thorough examination failed to demonstrate any infectious process; it is entirely possible, however, that some local infection was missed, or infection may have entered

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

through apparently intact mucous membranes. We have considered also the possibility of some other nonbacterial etiology of the iritis in these two cases, although one of the former explanations seems to us more probable.

UNDETERMINED GROUP

Seven cases in which evidence of infection was found, but in which the relation of infection to iritis was not clear, require mention. In one there was a positive Wassermann reaction, no history or evidence of syphilis, and the iritis improved slowly under antisyphilitic treatment; in a second there was a positive Wassermann reaction and urethral strictures; in a third, a positive Wassermann reaction without other evidence of syphilis, and gonorrhea five years and arthritis eighteen months previously. A fourth patient had extensive pyorrhea without apical abscesses, and subacute cystitis in which carefully made cultures after cystoscopy remained negative; in a fifth case an extensive pyorrhea was the only lesion found; in a sixth case there was some evidence of tonsillar infection only, but circumstances did not permit of a clear demonstration of its relation to the iritis. In a seventh case the only evidence of infectious process found was a positive tuberculin reaction after subcutaneous injection. Some of these might be included in one of the infectious groups, but for statistical purposes we have felt that it is better to place them in a group with claims more in keeping with the indefiniteness of the available evidence.

SYPHILIS

The search for syphilis included a careful history, physical examination for clinical evidence of syphilis, and Wassermann tests usually controlled by two laboratories, and by repeated tests in all cases. In fifteen cases (two private and thirteen clinical), syphilis seemed clearly the cause of the iritis. In six of these there was gumma of the iris. In three, syphilis was the only infection present; in twelve others, infections, chiefly dental and tonsillar, were present, but collateral evidence, such as presence of gummatous iritis, and active syphilis elsewhere and prompt healing under antisyphilitic treatment without other intervention, indicated a syphilitic etiology. In addition to these fifteen cases in which syphilis was concluded to be the cause of the iritis, evidence of syphilis, usually a history of syphilis years previously, or a controlled positive Wassermann reaction was found in fourteen other cases. These included seven cases in the combined groups in which evidence of syphilis was associated with other infections of the sinuses, tonsils and teeth, and tuberculosis or gonorrhea. In some of these, syphilis may have been the cause of the iritis; in others, the iritis resisted antisyphilitic treatment, and sometimes yielded after removal of other infections. Syphilis cannot be excluded as a cause of the iritis in the cases of the undetermined group in which the Wassermann test was positive. In the four cases of the tonsillar group in which positive Wassermann tests were obtained, there was no other evidence of active syphilis.

In this series there were twenty-nine cases in which syphilis was present; of these the iritis was syphilitic in origin in fifteen, and possibly syphilitic in some of the remaining fourteen cases. The percentage of cases of syphilitic iritis in this series is thus not over 25, and probably somewhat less. A comparison of our results in this series with those of the 1916 series, in which evidence of syphilitic infection was found in thirty-nine cases, and in which 23 per cent. of the iritis was due to syphilis, is of interest in relation to the question of the importance of syphilis as a cause of iritis, and also in relation to the importance of the source of material on which statistics of any kind are based. Unrecognized and untreated syphilis is more frequent in dispensary than in private practice. The proportion of private to dispensary cases was greater in the present than in the 1916 series, and in addition it happened that more cases were referred to us from the venereal wards of the county hospital prior to 1916 than subsequently. These factors, no doubt, have tended to decrease the proportion of syphilitic iritis in the second series. Combining the first and second series in which the cases are approximately half private and half clinical, over a period of ten years, evidence of syphilis was found in 34 per cent., and the iritis was clearly due to syphilis in 19 per cent. Syphilis was the cause in 200 cases in probably not more than 25 and in a much smaller percentage of cases in private practice. These figures are regarded as important, not alone from the standpoint of therapy, but because of their sentimental importance to the sufferer from iritis. It is, no doubt, true that statistics obtained solely from a municipal hospital including venereal wards would show a higher proportion of syphilitic iritis; but even in such a group, a complete survey of each patient would be necessary to exclude other infections, for there is no reason why a patient infected with syphilis should not suffer from iritis of other cause.

TABLE 1.—*Infections Found in One Hundred Cases of Iritis, Series of 1923*

Infections	Alone	With Other Infections	Total	Coincident Infections: Syphilis	Gonococcal	Tuberculosis	Dental	Tonsillar	Sinus	Nonvenereal Genito-Urinary	Other Infections
Syphilis	2	13	15	..	..	1	8	9	2	..	..
Gonococcal infection	1	..	1	..	..	..	..	..	..	..	..
Tuberculosis	..	..	..	..	..	..	..	..	..	..	..
Dental infection	5	4	9	..	..	..	..	2	2	..	..
Tonsillar infection	19	18	37	4	..	2	15	..	1	1	1
Sinus infection	..	1	1	..	..	..	1	..	..	..	..
Genito-urinary, non-venereal	3	..	3	..	..	..	..	..	..	..	..
Other infections	1	..	1	..	..	..	..	..	..	..	..
No infection found	..	..	2	..	..	..	..	..	..	..	..
Combined infections	..	24	24	7	3	4	19	22	10	..	5
Undetermined	..	7	7	8	..	1	2	1	..	..	2
Total			100								

GONOCOCCAL INFECTION

Iritis from gonococcal infection was present in one case in the absence of other demonstrable infections, and associated with multiple arthritis and prostatitis, and gonococci in the urethral discharge. Active gonococcal infection was present also in three other cases in the combined group. In one there was a recurrent arthritis, syphilis, pansinusitis, alveolar abscesses and chronic tonsillitis; in a second, recurrent arthritis, pulmonary tuberculosis, dental infection and tonsillar infection; in a third, arthritis with prostatitis, syphilis, and dental and tonsillar infection. A gonococcal origin of the iritis would have to be considered in these, particularly in view of the recurrent arthritis, which in two was clinically like gonococcal arthritis. The presen of other active infections, however, does n concluding that the iritis was certainly origin. The number of cases in which there was gonococcal infection is much smaller than in the series of 1916, in which there were nine cases in which the iritis occurred in close association with gonococcal infection, in seven without other infections, and in two with other infections. It was noted in the previous report that the seemingly large number of cases of gonococcal iritis was probably due to the fact that one of us was studying gonococcal arthritis, and that chances of meeting with other gonococcal metastases, including iritis, was thereby much increased. During the period since 1916, we have seen much less gonococcal arthritis, and this fact, together with the decrease in the number of patients referred to either of us from venereal wards, may well account for the smaller proportion of gonococcal iritis in this series.

TONSILLAR INFECTION

The evidence on which a diagnosis of tonsillar infection has been made are recurrent attacks of tonsillitis, evidence of chronic infection such as the expression of pus, with associated redness of the anterior pillars, and chronic enlargement of the regional lymph nodes. The presence of cheeselike plugs in the tonsillar crypts has not been alone regarded as evidence of chronic infection in this or the previous series. We have had the assistance of expert and, we believe, conservative advice of specialists in diseases of the nose and throat in the diagnosis of these cases.

Tonsillar infection was present alone with iritis in nineteen cases, and in eighteen others with other infections. Evidence of tuberculosis was found in two cases, nonvenereal genito-urinary infection in one, and sinus infection in one. A positive Wassermann test without other evidence of active syphilis was found in four. Chronic tonsillar infection was present also in twenty-two of the combined group, in which it was impossible to ascribe the iritis to any one of the several infections present.

DENTAL INFECTION

Nine cases of iritis were apparently due to dental infection (alveolar abscesses). Five of these were unassociated with other infections. In each of four others, tonsillar and sinus infections were found. Alveolar abscesses were found in forty-three other patients, of whom eight were in the syphilitic group, fifteen in the tonsillar group, one associated with sinus infection, and nineteen in the combined group. In two cases in the undetermined group, there was an extensive pyorrhea without alveolar abscesses. It is possible that these two should be regarded as iritis of dental origin, although it has not been our experience that pyorrhea is often associated with metastatic lesions. The serious influence of pyorrhea in some cases on the general health is, of course, not questioned. The large proportion of alveolar abscesses, in which chronic tonsillar infection is also present, and the relatively small number in which alveolar abscesses occur alone gives weight to the view, advanced by dentists of wide experience, that in many instances in which alveolar abscesses and chronic tonsillar infections occur together, the alveolar abscess is as truly a secondary infection as is iritis or arthritis. It is common experience that the removal of an alveolar abscess in a patient with chronic tonsillar infection frequently fails to prevent the recurrence of metastatic infections. These views have undoubtedly affected our opinion in each case studied, so that in the present series we have nine cases in which we believed the dental infection to be the cause of the iritis, as against thirty-seven due to tonsillar infection. We have also been influenced by the subsequent course of the iritis and freedom from recurrence following removal of the alveolar abscesses and chronically infected tonsils. Except in emergencies in which iritis occurred in persons whose vision had been lost in the other eye, we have counseled conservatism in dealing with teeth in which there was doubtful evidence of infection of minor degree, and have regularly availed ourselves of abundant expert dental consultation.

SINUS INFECTION

In determining the presence or absence of sinus infection, in addition to the evidence obtainable from the history, a routine examination of the nose was made together with transillumination tests, and roentgenograms in a majority of the cases. In all cases in which there was any question of sinus infection, the patients were carefully examined by specialists in this department of medicine, and the diagnosis was confirmed in positive cases by the demonstration of pus and other evidence of infection.

Infection of the sinuses was found in fifteen cases. In one in which there was a severe pansinusitis associated with two alveolar abscesses, the sinus infection was regarded as the source of the iritis. Sinus infection was found also in two cases in the syphilitic group, in two cases in the dental group (maxillary sinusitis), and in ten cases in the combined group, usually associated with infections of the tonsils or teeth. In the combined group in which multiple areas of infection were present, the sinus infections undoubtedly contributed to the load of infection of the patients, and in some instances may well have been the portal of entry of the infection which gave rise to the iritis; but the presence of the other infections suggested as preferable the inclusion of these cases of sinus infection in the combined group. In the total of 200 cases, infection of the sinuses was found in twenty-two cases.

TUBERCULOSIS

We have not encountered any cases in this series in which the iritis was clearly associated with tuberculous infection. Evidence of tuberculosis, either on physical examination or from tuberculin reactions or both, was found in eight cases. In one case of syphilitic iritis there was a chronic active apical tuberculosis; in two cases due to tonsillar infection there was a positive tuberculin reaction without other evidence of active tuberculosis; in two cases in the combined group, there were physical signs of old pulmonary tuberculosis with positive tuberculin reactions; in another, tuberculous cervical glands; and in a fourth, a positive tuberculin reaction without other clinical evidence of active tuberculosis. In one other case classified as undetermined, a positive tuberculin reaction without other clinical evidence of tuberculosis was found. In none of these did there appear to be a clear relation between the iritis and the tuberculosis.

NONVENEREAL PROSTATITIS

In three cases, a subacute prostatitis was the only infection found. In one there was an old history of gonorrhea twenty years previously which had healed without immediate complications and without stricture. There was no subsequent history of venereal infection, and examination and a thorough search by the urologist failed to show any evidence of gonococcal infection.

In one case the iritis healed after prostatic massage. Two years later, following severe physical strain and much driving in an automobile over rough roads, the prostatitis recurred with a slight urethral discharge. There had been no exposure to venereal infection, and the transient discharge contained no gonococci. With the prostatitis and arthritis there was a recurrence of iritis.

MUCOUS MEMBRANE INFECTIONS

Recent studies of recurrent acute and subacute metastatic infections, of which acute and subacute arthritis and iritis of the type under discussion are examples, suggest that, while probably the majority of cases are due to infections resident in some locally infected tissue, there is a group in which the infection enters directly through the mucous membranes without previous prolonged residence in the body.[1] Inflammation of the mucous membranes of the nose and pharynx is sometimes followed by arthritis, in persons in whom previously existing local infections were not demonstrable. In one of our patients, otherwise apparently free from demonstrable localized chronic infections, the iritis followed a "cold in the head." In this case, the coexistence of an acute sinusitis cannot be excluded; but insistence on this point is perhaps more academic than practical.

There are a number of case reports in the literature in which the iritis is attributed to intestinal infection and intoxication. A review of these reports suggests that, while in some the gastro-intestinal symptoms were probably merely secondary effects of infection, the true source of which remained undiscovered, in others the possibility of bacterial invasion from the intestinal tract must be considered. The number of such cases is probably relatively small; and, since in the individual case the diagnosis is largely a matter of exclusion of other sources, there is required a thorough examination, and demonstration of the absence of all other more common sources of infection, before a diagnosis of iritis of intestinal origin can safely be made. From a review of experimental evidence in animals,[2] it appears that while infection may enter the body through presumably intact intestinal mucosa, under normal conditions of health the intestinal wall must offer a fairly effective barrier to the passage of bacteria from within its lumen. In man, it is conceivable that under conditions of greatly depressed resistance, bacterial invasion by organisms of low virulence might occur, with the production of metastatic lesions without continued bacteremia. This seems to be the case in certain ulcerative diseases of the intestine. In ulcerative colitis, there sometimes occur exacerbations with fever, with demonstrable transient bacteremia, and occasionally arthritis; and, presumably, iritis might originate in the same way. In one of our patients (in the combined group) with recurrent iritis of many years' standing, in whom infections of the tonsils, sinuses and teeth had been successively discovered and removed, the iritis continued to recur along with exacerbations of a chronic colitis. On the other hand, several patients with iritis gave a history of associated intestinal disturbance, but examination disclosed other and apparently definite infectious processes to which the intestinal complaints were probably secondary.

COMBINED INFECTIONS

In approximately two-thirds of the cases in the present series, there was more than one area of infection. The frequent coexistence of chronic or recurrent tonsillar infection, alveolar abscesses and sinus infection has already been referred to. In a number of patients, in addition to these infections, there was found also syphilis, gonococcal infection and tuberculosis. Multiple infections no doubt have a cumulative effect in reducing the resistance of the patient, and in such persons a conclusion as to which infection is responsible for the iritis may be difficult or impossible. The successful eradication of one infection may remove a sufficient amount of the load so that the patient ultimately recovers from the others, and, under such circumstances, conclusions as to the etiology based on the results of treatment must be guarded. In twenty-four cases, ten private and fourteen dispensary, in which there were multiple infections, we were unable to determine with certainty which infection had given rise to the iritis.

RESULTS FROM OPERATIVE PROCEDURES

Following the removal of infected tissue, such as chronically infected tonsils, there may be a steady improvement in the eye and ultimate recovery without recurrence of the iritis, and the inference seems reasonable that the tonsillar infection caused the iritis. In another case, the removal of the tonsils is followed by a more striking and sudden improvement in the eye within from twenty-four to forty-eight hours. This improvement may be permanent, in which the inference as to tonsillar causation may be warranted, or in a few days the iritis recurs. The immediate improvement is apparently similar to the startling but often temporary improvement seen in arthritis, and also in iritis following the intravenous injection of foreign protein; it is probably nonspecific, and may be misleading, in that the procedure which gave rise to the prompt effect may be given undue credit as evidence as to the cause of the iritis.

TABLE 2.—*Infections Found in Two Hundred Cases of Iritis, First and Second Series, 1916 and 1923*

Infections	Alone	With Other Infections	Total	Coincident Infections							
				Syphilis	Gonococcal	Tuberculosis	Dental	Tonsillar	Sinus	Nonvenereal Genito-Urinary	Other Infections
Syphilis	12	26	38	..	8	6	13	10	3	..	..
Gonococcal infection	8	2	10	..	..	..	1	1	..	..	..
Tuberculosis	8	..	8	..	..	..	..	..	..	..	..
Dental infection	12	15	27	2	2	2	..	9	3	..	..
Tonsillar infection	26	27	53	5	3	4	22	..	1	1	1
Sinus infection	1	3	4	..	..	..	2	1	..	..	..
Genito-urinary, non-venereal	6	..	6	..	..	..	..	..	..	..	..
Other infections	8	..	3	..	..	..	1	..	..	..	..
No infection found	..	..	3	..	..	..	..	..	..	..	..
Combined infections	..	41	41	15	12	11	27	35	15	1	5
Undetermined	..	7	7	3	..	1	2	1	..	..	2
Total			200								

AGE

The youngest patient in this series was 13 years old, the oldest 69 years. The average age was 35 years. With the exception of the 13 year old patient, a girl, well developed for her age, whose iritis healed promptly and permanently after the removal of infected tonsils, there were no cases of iritis in either series in children. Among the factors which suggest themselves in explanation of this apparent infrequency of iritis early in life are the infrequency of small areas of long-standing infection, such as alveolar abscesses, and the reputed greater activity of lymphoid tissues of the pharynx, tonsils and lymph nodes in resisting infection, in the young as compared with adults. In children, the sinuses are relatively small and undeveloped, and also gonorrhea and acquired syphilis are less frequent than in the years after puberty. It may be noted also that, with the exception of the arthritis of acute rheumatic fever, arthritis is relatively less frequent in children than in adults.

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[1] Irons, E. E.: Some Less Frequently Considered Portals of Infection in Arthritis and Iritis, J. A. M. A. **80**: 1899 (June 30) 1923.

[2] Moody, W. B., and Irons, E. E.: J. Infect. Dis. **32**: 226 (March) 1923.

THE FIRST AND SECOND SERIES COMBINED

In Table 2 we have combined the cases of the first and second series. The incidence of the several types and areas of infection in the two series has already been compared in the discussions of the different infections. In the comparison of infections found in these two series, differences are evident, some of which are easily accounted for by known differences in the sources of material, and it is probable that another hundred cases would further modify the percentages of the several etiologic groups. These figures are presented, therefore, not in an attempt to establish the exact frequency of occurrence of the several causes of iritis, but rather as a recital of what infections we found in these 200 patients.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FRANCIS, AND IRONS AND BROWN

Dr. C. D. Wescott, Chicago: I agree with Dr. Francis that a better classification of iritis and uveitis based on etiology is very desirable. I doubt whether it is possible in the present state of our knowledge to formulate one that will be satisfactory. The one suggested by Dr. Francis seems to me not sufficiently simple and in part untenable. The relation of malaria to iritis, for instance, is very uncertain. I have never seen iritis in true rheumatic fever, and I do not know what causes rheumatic fever, nor do I know the cause of scarlet fever; but the iritis which is sometimes a complication might easily be due to the streptococcus which is so often found in the throat in such cases and has no other relation to the scarlatina. Our knowledge of the relation of intestinal toxemias to uveitis is still indefinite, and the eye complication might be due to associated infection not easily discovered. This is also true in gout, diabetes, "anemia," typhoid and other diseases. The work now going on in the study of anaphylaxis and sympathetic inflammation is extremely important, but, so far, it seems to me, inconclusive. Dr. Francis' classification is certainly very suggestive; but it would be better not to adopt it just yet as the consensus of this section. Dr. Brown and Dr. Irons deserve the thanks of the section. Their study, which, it will be recalled, was initiated for the purpose of discovering, if possible, the cause of "rheumatic iritis," has demonstrated rather conclusively that "there ain't no sich animile"; and the term "idiopathic iritis" may, with propriety, be quietly interred. While this second paper establishes more conclusively the facts brought out in their first communication, the authors have shown that statistics and percentages in regard to the etiology of iritis will always depend somewhat on the source of the material studied and this must be true in regard to the etiology of many conditions. The authors are to be commended for their eminently fair and conservative attitude throughout these studies. I wish to take this opportunity to acknowledge my indebtedness to Dr. Irons for his assistance in the general study of some of my cases.

Dr. Clarence A. Veasey, Spokane, Wash.: Since the papers of Alexander and others, published a generation ago, in which from 60 to 75 per cent. of all cases of iritis were attributed to syphilis, our views concerning the etiology of this affection have undergone many radical changes. The work of Rosenow and others on the importance of focal infections and specific strains of micro-organisms in the production of many affections throughout the body, and that of the authors of this paper concerning the etiology of iritis, has done much to clarify our views and place them in a much better scientific position. As to the percentages of iritis due to any given infection, there must always be some difference of opinion according to the class of patients from which our statistics are drawn. Public hospital cases, and especially hospitals with venereal wards, naturally must give a larger number of cases of iritis due to venereal infections than statistics derived only from private practice. This is especially true if the private practice is among the better classes who have inclination, knowledge, opportunity and means of taking better care of themselves. In my experience (after excluding syphilis), chronic infected tonsils have been the most frequent source of the foci of infection. The tonsils may be the sole seat of infectiton or may be accompanied by dental or other infections. The suggestion referred to in the paper, that many dental infections may be secondary and due to tonsil infections, is a very important one and should be investigated carefully. In comparatively few cases will a single focus of infection be discovered. Most of the cases are mixed infections. The possibility of a pyorrhea or of an intestinal infection being the primary focus must not be overlooked. One must not put too great dependence on roentgenograms, if they are negative. Too frequently it has been found that a sinus reported negative from the roentgenograms contained pus, and that a tooth, also reported negative, showed, when extracted, an apical abscess. Roentgen-ray examinations, when positive, are of great corroborative value, but, when negative, do not always exclude the possibility of an infection existing in the parts. The clinical examination must be our chief guide. The laboratory findings are adjuncts. In operative procedures, many curious effects are observed. Within a month I have observed one case of plastic iritis that resisted the ordinary methods of treatment, and in which the advice of removal of the infected tonsils was declined for ten days. It cleared up entirely within forty-eight hours after the removal of the tonsils, the eye in that time becoming as white and as quiet as the fellow eye. On the other hand, a patient under my care for many years for recurrent attacks of iritis, in whom double iridectomy had been performed and from whom all sources of infection were thought to have been removed, had a severe iritis within twenty-four hours after the removal of a tooth clinically suspected, and the removal of which revealed an apical abscess. The same thing has occurred when the removal of infected tonsils has been quickly followed by an inflamed joint.

Dr. T. B. Holloway, Philadelphia: At the present time we are in the midst of considerable confusion in regard to the etiology of uveitis. The authors have found syphilis a factor in 19 per cent. of their cases; Lang found only 6 per cent. in his private practice. On the other hand, Campbell showed 70 per cent., and Clapp had 80 per cent. Many of Clapp's patients were colored, and a definite percentage showed condylomas. When one compares these figures, is it any wonder that the young man of today becomes confused? As to the tonsils, my own experience is somewhat at variance with that of the authors. For years I have had all of my uveitis cases gone over in much the same way as has Dr. Brown, probably not quite so thoroughly, or shall I say, consistently thoroughly. It is extremely difficult to have all of these examinations made in every case. But the tonsils have not figured with me to the same extent that they have in these statistics. I am also somewhat reluctant to accept the statement that the dental conditions are secondary to the tonsil infection, particularly in older people. It seems to me that pyorrhea, dental abscess and alveolar atrophy are apt to come on in middle life or later years when other organs and functions are undergoing a retrograde process, and, as is well known, may set up distant infectious processes. I should be a little reluctant to accept that statement in toto. Another interesting factor is the relation of the toxins to this condition. At the Boston session, de Schweinitz quoted Flexner as stating definitely that we know nothing at all in regard to the toxins of the pyogenic cocci; that they cannot be found in anything more than minimum amounts in artificial cultures. Another interesting point is the question of focal infection. Is the onset of the iritis dependent on the turning over of the soil prior to the bacterial invasion, or is it dependent on a selective affinity for certain tissues, as put forth by Rosenow? It is interesting in this respect to point out that Lyons of England in 1916 stated that he believed the bacteria and toxins prepared the ground, but that some trauma, however minimal in degree, was necessary to induce the iritis. Quite in contrast with this, and yet working along similar lines, Flexner takes the opposite view. He believes that trauma, however minimal in amount, is the preparatory step, and that subsequently the bacterial invasion occurs. I have always looked on the last series of 100 cases studied by Drs. Brown and Irons as the most reliable study made in this country, and I know of no statistics from foreign clinics that we can rely on to a greater extent. I do want to point out, however, that even in these statistics much depends on the race, careful study, observation and treatment, and on the interpretation of the findings in these cases. Still further, I dare say that if the authors were to transfer their work, even in Chicago, to a different center, they might possibly arrive at some different conclusions.

Dr. Lloyd Mills, Los Angeles: It will be noted that the combination of cases in which no infection was found, and of the undetermined cases, forms 9 per cent. Anything, therefore, that will tend to reduce the obscurity covering that undetermined element in iritis should be accepted with interest. About a year ago, I had at one time three intractable cases of iritis. In each case the patient had been treated by other men for a long time. Two had come from the Middle West, one from San Francisco, and in each case they had reached the point of near blindness. It was a question of examining the body in every possible way to find out some other possible source of infection. The patients were put into the hands of a good internist, who found nothing new in the way of foci of infection. Tonsils and teeth had been eliminated, nasal sinuses had been eliminated, and every other possible source of infection. As a last resort, thinking there was something back of these cases because the patients were sallow and complained of lassitude and constipation, I sent them to another internist. He found that each of these patients harbored *Endameba histolytica* in the stools; with the first injection of emetin, these eyes, which had been red and absolutely impossible to control by any other means, began to make definite improvement. One of these patients, who has been under observation for eight months, recovered perfectly after a severe fight; two others are still under treatment and are improving. At the same time, in that curious way which unusual cases have of coming in groups, two cases of intractable corneal ulceration came to me. I found *Endameba histolytica* in one case and *Craigia* in the other as the source of infection. The patients have recovered. This work was further confirmed by Barraquer of Barcelona. In the first similar case that I saw with him, we found amebas, and the first injection reduced the redness of the eye. The patient is still improving under treatment. This work should be confirmed, and the means of confirmation are simple. If the relation is confirmed, we shall have to include in our nomenclature the term protozoan iritis as well as that of protozoan keratitis. I would suggest, if any cases can be found which go on, as did my first case, to intractable glaucoma in one eye, that careful section of such an eye might wholly clear up the question of the actual invasion of the tissues by protozoa, a question which is still under discussion, and which would go far to aid the internists on this important question.

Dr. F. Park Lewis, Buffalo: Shortly after Rosenow demonstrated the affinity of certain organisms for special tissues, it occurred to me that it would be well to see whether the same fact held good in intra-ocular inflammations. A case of malignant iritis coming under my observation gave an excellent opportunity for making this study. After the elimination of every other possible source of infection, a roentgenogram showed the presence of an apical abscess. The tooth with which this was connected was removed under as nearly aseptic conditions as possible. It was then dipped in iodin, cracked open, and a culture made in bouillon from the root canal. The organism proved to be *Streptococcus hemorrhagica* in an almost absolutely pure culture. Several white rabbits and some white mice were procured, and about 6 c.c. of the bouillon was injected into the ears of the rabbits and the abdomen of the mice. Twenty-four hours later, a second injection of the bouillon was injected into the abdomen of the rabbits. Forty-eight hours after the first injection, the eyes of the rabbits were found to be highly injected; the iris was inflamed, and the pupil contracted. It was a definite case of iritis. The eyes of the mice also reddened, but the involvement of the iris was not so readily determined. After the second injection, the rabbits died. The eyes were immediately removed under aseptic precautions, and a bit of the iris dropped into sterile bouillon. The next morning, the bouillon was found alive with an almost absolutely pure culture of the same organism. This was, I think, the first instance in which a definite demonstration was made of the selective affinity of an organism for an intra-ocular structure. I think that sometimes in the study of pathology we arrive at a more exact estimate of the actual conditions that obtain by an observation of the disease when it appears in a minor rather than in a maximum degree. We do not know quite what changes occur in the venous structures within the eye as the result of focal infections, but I have seen, as their result, moderate obstructions in the retinal veins with edema around the macular and lowered vision. Such a case came recently under my observation in consequence of an apical abscess, the congestion disappearing and the vision being restored on the removal of the infected tooth. The probabilities are that either as a result of bacterial infection or from the toxins given off by bacteria and taken into the venous circulation, a small embolus was formed which obstructed the circulation, but which was absorbed or passed into the general circulation when the source of the infection was taken away. I suggest this as a possible explanation of the somewhat obscure conditions that occur in advanced stages when we have complete obstruction of the veins and absolute blindness as a result.

Dr. John A. Donovan, Butte, Mont.: Drs. Brown and Irons discuss the etiology in different localities. I find that, in many cases of iritis, treatment of the nose brings marked improvement. My experience has been that many cases of iritis are due to inflammation of the nose. My experience in tuberculosis has been much like theirs.

Dr. W. H. Dudley, Los Angeles: In a case of acute iritis beginning with violent symptoms and progressing rapidly, I investigated the cause. The patient had had a Wassermann test made recently. The teeth and tonsils were negative; the intestinal tract proved the same, and the urine was negative except for large quantities of diacetic acid and acetone. This being an unusual finding in a case of this sort, I gave the patient sodium bicarbonate. Within forty-eight hours, the eye became practically white, the pain was gone, the synechiae were disappearing, and the pupil was wide. In one case in which I had a great deal of trouble in getting response to remedies for two or three months, reexamination of the urine showed the same condition with reference to the acetone and diacetic acid. In this case, also, the response to alkali was prompt. The vision began to improve and the condition was relieved. Up to the present there has been no return of the trouble. Two cases do not prove much, but I do feel that, in some cases that do not clear up promptly under the measures used, if no other cause can be found, it is worth while to look for these acetone bodies.

Dr. Allen Greenwood, Boston: "Elimination of diseases causing iritis" is a broad term. How can we always eliminate a cause? We make a roentgenogram of the teeth, but we have not absolutely eliminated the teeth. We examine the tonsils, but we have not absolutely eliminated the tonsils unless we remove them. The same is true of o[illegible] conditions. It is a difficult matter to eli[illegible] ses of this disease. Another thing, very f[illegible] d as tuberculous are, I think, diagnos[illegible] the members might confuse acute i[illegible] often tuberculous in origin. In cas[illegible] to me that tuberculosis is rarely the causative agent. I think most of us will agree that in private practice the question of focal infection in the teeth is of more importance than in the tonsils, for there are more cases which can be demonstrated to be due to focal infection from the teeth. I am accustomed to take cultures of dental focal infections, and in most cases find the streptococcus that Dr. Rosenow has proved to be one that has a particular affinity for the iris.

Dr. Andrew Timberman, Columbus, Ohio: I believed in a causal relationship between teeth, tonsils and iritis for many years. In the last few years, however, I have changed my ideas. I heard this first report on 100 cases in Washington six or seven years ago. I was very much impressed and have been watching my cases with more interest since that time. Many of my cases of iritis have passed through the hands of other physicians, many of them oculists, and particularly the class of oculists who do no nose and throat work. I found, on observation, that many of these men made a very careless examination of the throat. Then I began a rather systematic examination of the throats of my patients, and in many instances when I first looked at them, I was sure that there was nothing wrong. But I have gone past that. A casual examination never will do. I never make an examination of the throat without pulling forward and to one side the anterior pillar, thus thoroughly exposing the fossa. I think that many times we overlook focal infection in that region. Only recently I saw a woman who had been told that she had no tonsils. When I first looked at her throat my impression was that her tonsils had been removed, but on more careful examination I found that she had tonsil abscesses hidden in the superior part of the fossa. I have come to look on tonsils a good deal as Schwartz did on temporosphenoidal abscess. I heard him say that there might be every symptom of temporosphenoidal abscess and the abscess not be present; and that one might have no symptoms of temporosphenoidal abscess and the abscess still be there. So it is with infected tonsils. I read an article by a New York man some time ago on "The Crucifixion of the Tonsil," and I rather agreed with him; but more mature observation and experience lead me to believe that if every child had his tonsils removed at 6 years, future generations would be happier and more healthy. These charts would suggest that sans teeth and sans tonsils, and desexed, we may be able largely to curb iritis.

Dr. M. H. Lebensohn, Chicago: A negative Wassermann reaction does not always mean no syphilis. In pre-Wassermann days, we used to depend on therapeutic tests. A patient who gave no evidence or history of syphilis was treated with a good deal of mercury and iodids. If he recovered, we said it was syphilis, and if he did not recover, we did not know exactly what it was. The therapeutic test is still good. I have had a number of cases in which the spinal fluid and blood Wassermann reactions were negative, and if I could not find any cause at all, I put the patient on mercury and iodids, with a great deal of benefit. Now, if I get a positive blood or spinal fluid Wassermann reaction, I treat the patient with arsphenamin; if I get a negative Wassermann reaction, I treat him with mercury and iodids, and with great benefit in the treatment. I would like to ask Dr. Irons whether any cases that were clinically negative and gave a negative Wassermann reaction were given the therapeutic test?

Dr. W. H. Roberts, Pasadena, Calif.: Dr. Lebensohn has not proved that those cases that do not show syphilis and that do not react to the therapeutic test are, nevertheless, due to syphilis. I think that a large majority of cases of iritis will improve under antisyphilitic treatment no matter whether they are syphilitic in origin or not. Before the days of serology, there is no doubt that we had the same troubles; i. e., toxins causing iritis, and yet we were told that 75 per cent. of our cases of iritis were syphilitic, and why? Because they improved under antisyphilitic treatment. If they improved in the old days under antisyphilitic treatment, they will still continue to improve under this treatment. Therefore, I wish to make a plea for the use of antisyphilitic treatment in all cases.

Dr. Ernest E. Irons, Chicago: With regard to the effect of removal of tonsils on an iritis, it is, of course, recognized that in cases in which the iritis is due to tonsillar infection, the removal of tonsils is desirable and hastens recovery; but the argument as to etiology should not be based entirely on the effects of tonsillectomy. In cases in which subsequent events indicate that the iritis was due to other causes, sudden but temporary improvement may follow tonsillectomy. This effect seems to be analogous to the sudden effect following the intravenous injection of foreign protein, and like this, is probably nonspecific. We have, of course, used antisyphilitic treatment in cases in which it seemed indicated. In dealing with all forms of infection, it is necessary to bear in mind not only the sources of infection, but also the important factor of resistance of the patient. I agree with Dr. Holloway that the source of material is bound to modify the results obtained in respect to relative frequency of occurrence of the several causes of iritis. This is illustrated in the comparison of results in our two series. We have attempted to present merely a simple statement of what we found in these 200 cases which we studied as carefully as we could.

STUDIES ON ISO-AGGLUTININS IN THE BLOOD OF THE NEW-BORN *

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Transfusion of blood has become such a specific curative measure in hemorrhagic disease of the new-born and in traumatic or accidental hemorrhages in the new-born occurring during delivery that the practical application of this work will become evident at once.

Some observers have stated that iso-agglutinins and isohemolysins are not present in the blood of the new-born and, hence it is unnecessary to test for compatibility of the bloods when the mother acts as donor for her offspring. On the other hand, others assert that both iso-agglutinins and isohemolysins are present in the blood of the new-born, even in that of premature infants, before birth, and that transfusion without compatibility tests may prove disastrous. The latter opinion is the one prevailing. It is on account of this variation in opinions that the present study attempts to verify either contention.

One hundred mothers and their respective new-born babies were grouped (Moss' classification) and subsequently crossagglutinated. In every case the blood of the new-born baby was collected from the umbilical cord and the blood of the mother from the median basilic vein. All tests were performed within seventy-two hours after delivery. To prevent imperfect results, all bloods were previously tested for autoagglutination, a rare phenomenon occurring when the temperature of the blood is below that of the body. The grouping of the blood of both the mother and the new-born baby was done in the usual manner with known citrated serum 2 and 3. The technic for the cross-agglutination tests was as follows:

Five drops of a 1.5 per cent. sodium citrate solution was placed in each of two small test tubes. Nine drops of the baby's blood was collected in one tube, and one drop of the mother's blood added. In the other tube was collected nine drops of the mother's blood and one of the baby's. Both tubes were thoroughly shaken and allowed to stand for one-half hour. One-half drop of blood from the first tube was placed on the left extremity of a glass slide, and one-half drop of blood from the second tube was placed on the right extremity of the same slide. A drop of physiologic sodium chlorid solution was added to each half drop of blood in order to dilute them, so as to render hemolysis and agglutination of the red blood cells much more easily visible. Cover glasses were used, and the bloods were examined microscopically. In fact, all bloods were examined microscopically, both when tested with the known serums and when crossed. Before each agglutination test was read positive, at least one-half hour elapsed, and the results were determined only after repeated thorough mixing and agitation of the bloods by rotating and lifting the cover glass from the slide. This was done to hasten, facilitate and make certain of the agglutination in case it occurred.

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* From the obstetric service of Dr. George L. Brodhead, Harlem Hospital.

Table 1 shows the results obtained.

TABLE 1.—*Results of Cross Agglutination and Grouping*

Case	New-Born	Mother	New-Born	Mother	Case	New-Born	Mother	New-Born	Mother
1....	0	0	4	4	51...	0	0	4	4
2....	0	0	4	4	52...	0	0	2	2
3....	0	0	4	4	53...	0	0	4	4
4....	0	0	2	2	54...	0	0	1	3
5....	0	0	4	4	55...	0	0	2	4
6....	0	0	4	4	56...	0	0	2	4
7....	0	0	4	4	57...	0	0	4	4
8....	0	0	2	2	58...	0	0	1	4
9....	0	0	4	4	59...	0	0	2	3
10....	+	0	2	4	60...	0	0	1	4
11....	0	0	3	3	61...	0	0	4	4
12....	0	0	4	4	62...	0	0	4	1
13....	0	0	2	2	63...	0	0	3	1
14....	0	0	1	2	64...	0	0	2	4
15....	+	0	4	4	65...	0	0	3	2
16....	0	0	4	4	66...	0	0	4	1
17....	0	0	4	4	67...	0	0	4	3
18....	0	0	4	4	68...	0	0	4	4
19....	0	0	4	4	69...	0	0	2	1
20....	0	0	4	4	70...	0	0	2	4
21....	0	0	4	4	71...	0	0	3	3
22....	0	0	4	2	72...	0	0	4	1
23....	0	0	1	4	73...	0	0	4	2
24....	0	0	2	1	74...	0	0	4	3
25....	0	0	2	1	75...	0	0	2	2
26....	0	0	4	2	76...	0	0	2	2
27....	0	0	4	4	77...	0	0	3	2
28....	0	0	4	3	78...	0	0	4	4
29....	0	0	4	2	79...	0	0	4	1
30....	0	0	2	2	80...	0	0	4	1
31....	0	0	3	1	81...	0	0	3	3
32....	0	0	1	1	82...	0	0	3	1
33....	0	0	4	1	83...	0	0	3	3
34....	0	0	4	4	84...	0	0	2	1
35....	0	0	4	4	85...	0	0	2	2
36....	0	0	2	2	86...	+	0	4	4
37....	0	0	2	4	87...	0	0	4	4
38....	0	0	3	1	88...	0	0	2	2
39....	0	0	1	1	89...	0	0	4	4
40....	0	0	4	2	90...	0	0	4	4
41....	0	0	3	3	91...	0	0	2	3
42....	0	0	4	4	92...	0	0	1	2
43....	0	0	4	4	93...	+	0	1	4
44....	0	0	3	4	94...	0	0	2	2
45....	0	0	1	2	95...	0	0	3	2
46....	0	0	1	4	96...	0	0	4	4
47....	0	0	3	3	97...	0	0	3	2
48....	0	0	2	2	98...	0	0	4	4
49....	0	0	2	3	99...	0	0	3	1
50....	0	0	4	4	100...	0	0	4	2

In 54 per cent. of the cases, both the mother and her baby belonged to the same group, and therefore transfusion would have been perfectly safe.

In the remaining 46 per cent. of the cases, mother and infant belonged to different groups. In thirty of the latter forty-six cases, or in 65 per cent., the bloods when grouped were found to be absolutely incompatible, if we accept the grouping method as criterion for compatibility. By absolutely incompatible, I mean that either the mother belonged to Group 1 and her offspring to Groups, 4, 3 or 2; to Group 2 and her infant to Group 3 or 4, or to Group 3 and her infant to Groups 2 or 4.

In this incompatible group I do not include cases in which the mothers belonged to Group 4, and the new-born infants to either Group 1, 2 or 3, because Group 4 donors are supposedly universal donors, although this statement is somewhat incorrect.

When all the 100 cases were crossagglutinated, no clumping occurred, whether the bloods belonged to compatible or to incompatible groups. In only four cases (Cases 10, 15, 86 and 93) the red blood cells of the new-born were clumped by the mother's serum. This may be disregarded, as the important object in transfusion is to determine that the introduced red blood cells be not clumped. In no case were the corpuscles of the mother agglutinated by the serum of the infant.

From the results obtained, it is evident that no agglutinins or hemolysins are present in the blood of the infant capable of acting on the erythrocytes of the mother. If there are any, not only the agglutinins and hemolysins cannot be demonstrated by any known means, but also their agglutinating and hemolyzing powers must be so feeble that the mother's corpuscles are able to withstand their action, and remain intact and unaltered, so that transfusion is absolutely safe and devoid of danger even when compatibility tests are disregarded. Transfusions on infants at Harlem Hospital have demonstrated these facts repeatedly. Mothers belonging to a group incompatible with the group of their respective infants have been used without any ill effect, and in some cases without even a rise of temperature and chill so common after any transfusion. Furthermore, this study shows that the different groups to which the mothers belong occur with approximately the same frequency as those of the new-born, as evidenced by Tables 2 and 3.

TABLE 2.—*Classification of Mother's Blood*

	Number
Group 4	44
Group 2	26
Group 3	13
Group 1	17

TABLE 3.—*Classication of Blood of the New-Born*

	Number
Group 4	47
Group 2	24
Group 3	17
Group 1	12

Another very important piece of evidence has been brought out by this study. Up to now, it has been said that the corpuscles of the new-born do not have their full quota of receptors. My results demonstrate that this is a misconception, because every new-born infant has been grouped with the known serums 2 and 3 according to the Moss classification. If the red cells of the new-born infants did not possess receptors susceptible of being acted on by agglutinins present in other serums, how could we explain the fact that all of the 100 cases have been grouped successfully, as Table 1 shows?

Finally, if the skeptic contemplates compatibility tests, the cross-agglutination should be the one of choice, as Table 1 clearly shows that even though the donor and the recipient belong to incompatible groups, the cross-agglutination test will determine absolute compatibility. This would prevent rejection of the mother as the probable donor, eliminate the search for a compatible one and save time, all of which may be of vital importance in emergencies.

CONCLUSIONS

1. Mothers may act as donors for their new-born infants without compatibility tests for agglutination and hemolysis.

2. If tests are contemplated, the cross-agglutination test should be the one of choice so as to prevent the rejection of the mother donor in case she is found to belong to an incompatible group.

3. Proof is given that the corpuscles of the new-born infants have their quota of receptors. This is shown by the fact that in all of the 100 cases, the new-born babies have been grouped successfully according to the Moss classification.

4. Successful transfusions done at Harlem Hospital, using mothers who, when grouped, were found to belong to groups incompatible with those of their respective new-born infants, demonstrated practically that mothers may be used with impunity without any danger whatsoever.

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CONTROL OF PAIN IN FUNCTIONAL HYPERESTHESIA OF THE CILIARY MUSCLE (PAINFUL ACCOMMODATION)

THROUGH THE NASAL (SPHENOPALATINE, MECKEL'S) GANGLION *

JOHN GREEN, Jr., M.D.
AND
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In this and other countries where the most prevalent refractive defects are hyperopia or hyperopic astigmatism, the services of the ophthalmologist are most frequently sought for the relief of discomfort or pain in or in the vicinity of the eyes or in some part of the head, this symptom usually being associated with smarting, blurring of print, and a whole galaxy of minor complaints which are grouped under the term "asthenopia." Since myopia and myopic astigmatism are relatively infrequent, as compared with refractive states in which axial shortening is the fundamental defect, it follows that the complaint is much more frequently "inability to use the eyes" than it is "inability to see."

It is not our purpose to catalog or describe the great number of symptoms of asthenopia; they are legion. They vary greatly in different patients and, indeed, may vary greatly in the same patient at different times. To the patient who is not in the habit of analyzing his sensations, an accurate description may be impos-ible. On one point, however, he is very clear; namely, hat his discomfort is aggravated by the use of the yes.

In the vast majority of such patients an accurate rrection of the refraction (and by this is meant the determination of the refractive error to the eighth of a diopter for the axial ametropia and the astigmatism, and the precise placing of the axis of the cylinder), associated with the correction of any vertical muscular error and appropriate management of lateral imbalance by means of prisms, exercises or operation, as may be indicated, will abolish all symptoms and permit the eyes to respond painlessly to all the demands of modern life.

It is a very common experience to find a patient suffering from a variety of asthenopic symptoms, including pain, whose distant vision is defective. The assumption that the refractive condition is one of myopia is strengthened by the improvement in vision, often to normal, by the placing of minus spheres (or minus spherocylinders) before the eyes. It is in cases of this type that the refracting optician frequently prescribes minus lenses, and is chagrined to find that his glasses, far from relieving his client, lead only to an aggravation of symptoms.

To the ophthalmologist, the true refractive condition is instantly revealed when the patient's eyes are put under the influence of atropin or some other reliable cycloplegic—a hyperopia, hyperopic astigmatism or rarely mixed astigmatism—which has been concealed by increased convexity of the lens dependent on exalted tone or "contracture" of the ciliary muscle. In many cases the prescription of proper lenses, but little weaker than the static measurement, leads to the happiest results. The "contracture" promptly yields to the combined effect of plus lenses and the complete physiologic rest of the ciliary muscle afforded by the cycloplegic.

Such a fortunate result, however, is not invariably attained. As soon as the ciliary muscle regains its activity after the effect of the "drops" has worn off, the contracture recurs, the eyes again become pseudomyopic, and the patient, while admitting that the glasses help for near work, bitterly complains that they make his distant vision very much worse. It requires great tact on the part of the examiner to gain the confidence and cooperation of the patient during the uncomfortable and trying period of adjustment to the new conditions imposed by the glasses. Before the spasm finally yields, it may be necessary to resort to several periods of atropin cycloplegia.

The relation between the physiologic tone and the pathologic exalted tone or "contracture" of the ciliary muscle has been discussed by Lancaster and Williams.[1] They define contracture as "a state of maintained contraction, or, looked at from the other and, as it seems to us, better point of view, a state of retarded relaxation. . . . Contracture is an excessive activity and should be stopped—tonus is normal and physiologic, and does not need to be stopped." The task of the examiner is, therefore, to determine how much of latent hyperopia is due to tonus and how much to contracture, and to prescribe a glass which shall do no more than "relieve the excessive action."

Accommodation associated with pain due to contracture of the ciliary muscle is characteristic of the extremely common types of cases just referred to. But there is another important, though not very large, group of cases in which accommodation provokes pain, often excruciating and utterly incapacitating, and in which there is no accommodative cramp. This condition was recognized and carefully differentiated by Donders[2] from cases of pain due to contracture, and was called by him "painful accommodation." Since the time of Donders, a number of writers have recognized the existence of painful visual sensations during accommodation and without accommodative cramp. For instance, Forster described this condition as hysterical kopiopia, Nagel as hyperesthesia of the ciliary muscle, Schenkel as hysterical ocular pain, and de Schweinitz as painful visual sensation, or hysterical asthenopia. All appear to be in agreement that underlying this

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Lancaster and Williams: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1914, p. 170.

[2] Donders: Accommodation and Refraction of the Eye, London, New Sydenham Society, 1864, p. 626.

accommodative anomaly there is invariably nervous instability.

In describing painful accommodation, Donders relates the following case history, which will help to make the clinical picture clear:

> A patient residing in the East Indies experienced pain on making observations with optical instruments. His state was considered to be hyperemia of the retina. On reading and in calculating his observations, he had increased pain. Under atropin, hypermetropia of 1.5 was disclosed. Convex glasses, both weak and strong, failed to relieve. Derivants and leeches were tried, with equal want of success. Reading for a few minutes produced pain which compelled him to desist. After suffering eighteen months, he wrote to Donders, who ordered atropin twice a week and convex glasses of different strengths for work at different distances. Almost at once the pain ceased. We give the rest of the history in Donder's own words:
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> "When, after a first disappointment, the use of atropin was, a few months later, for the second time suspended, the pain on tension of accommodation did not return, and so far as I am aware no disturbance whatever has since recurred in making observations, reading, writing or calculating. This case scarcely needs any comment. It shows that in slight degrees of H. a condition may be developed by continued tension in which the least accommodation for near objects becomes very painful. Spectacles are then of no use, because with convergence involuntary accommodation is combined, and this again excites the pain."

This and similar cases related by Donders were all in patients under the presbyopic age. In 1917, one of us[3] presented a study of three examples of painful accommodation in persons with presbyopia. The impression gained from this study was that the condition was by no means so rare as the paucity of published cases would seem to indicate, and that probably many cases escaped us through failure to put ourselves *en rapport* with the whole physical and psychic history of our patients.

The diagnosis of painful accommodation should not be made unless these conditions coexist:

1. The presence of hyperopia, hyperopic astigmatism or mixed astigmatism.
2. The absence of any muscular anomaly which might conceivably give rise to symptoms of muscular asthenopia, including pain.
3. The absence of "contracture" or "spasm" of the ciliary muscle.
4. Complete control of pain during efficient atropinization.
5. The return of pain on use of the eyes as soon as the effect of atropin has passed away (the patient wearing his full correction).
6. The persistence for weeks and months of unabated pain in near work, despite the constant wearing of the full correction.

The inadequacy of routine measures in the management of these cases is well recognized by those who have given the subject much thought. The possibility that a patient who complains of pain in using the eyes may be suffering from "painful accommodation" should always be borne in mind. Several follow-up visits after glasses have been prescribed may be needed to establish the diagnosis. Too frequently, we suspect, the diagnosis is missed altogether, and the patient, unrelieved, drifts from one adviser to another. Sooner or later he is labeled "neurotic" and is shunted off to a psychiatrist, whose failure to help results in the patient consulting a representative of one of the cults. (Let us add, parenthetically, that we do not mean to disparage the value of mental suggestion in certain forms of asthenopia. We are entirely in accord with Lancaster's[4] recent observation that a careful analysis of the mental state of some of these sufferers will reveal "anxiety neuroses" which may be dissipated by psychotherapy.)

The fact that the pain can be completely abolished by thorough atropinization, that it does not return during the period of atropinization, and that it does return with the resumption of the function of the ciliary muscle, proves that the source of the pain lies in the ciliary muscle. We feel, therefore, that Nagel's designation—hyperesthesia of the ciliary muscle—most accurately describes the condition.

Not all cases are of the relatively mild type of the one related by Donders, and yet even in his case the first atropin period was followed by recurrence of symptoms. Typical of the severe type is a case reported by one of us[3] in 1917, a brief synopsis of which is given:

> Dr. X., a man of excellent physique, after graduating in medicine, set out to achieve a large measure of success as a practitioner. He was successful from the start. He entered actively into the work of various medical societies, held various teaching positions in his medical school, and ultimately occupied the chair of surgery. For twenty years it was one continual grind from morning to night. Often he would return home at midnight, tired out after a round of visits, and spend the next two or three hours preparing himself for the next day's lecture or demonstration. In spite of his strenuous life he supported, with equanimity, a moderate hyperopia, with a low inverse astigmatism. Without experiencing any of the signs of early presbyopia, he reached the age of 47, when, rather suddenly, the accommodative strain became too great. After a morning's operating, he would pass a wretched afternoon, with bloodshot, aching eyes. The oculist consulted prescribed reading and operating glasses, with bromids internally. There was no relief. Finally a sea trip was planned and undertaken, during which he abstained from reading. He returned convinced that his eye troubles were at an end. But his hopes were dashed the first morning he attempted to operate—the eyes burned and ached. That afternoon was spent on a couch in a dark room, with cool cloths applied to the closed lids. For two months he led a miserable existence, endeavoring to get through with the accumulated operative work of the summer, and spending his afternoons and evenings in ocular misery. He was fond of social life, but found the bright lights of the drawing room intolerable. "On several occasions," he said, "it has required all my will power to remain in a friend's house the time demanded by the rules of courtesy." Such an experience would be followed by a sleepless night.
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> A group examination proved that, apart from his eyes, he was a thoroughly sound man. The measures adopted in this case were (1) prolonged atropinization (one month); (2) full correction of a hyperopic astigmatism and presbyopia (bifocals); and (3) systematic reeducation of his irritable ciliary muscles by carefully regulated reading exercises. He abandoned his practice, and went to live on his farm in a distant state. He has made a partial recovery (ability to read upward of an hour at a time), but has never ventured to resume his practice.

As has been stated, it is always possible to abolish the pain in this condition by rendering the accommodative apparatus functionless by means of atropin, but it is obviously impossible to keep a patient permanently under the influence of atropin; and, moreover, in persons with presbyopia, such a procedure is not without danger of inducing a rise of tension in preglaucomatous eyes.

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[3] Green: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1917, p. 178.

[4] Lancaster: Tr. Am. Acad. Op[illegible] Oto[illegible], 1922.

The question then arose, Might it be possible to control the ciliary pain by indirect measures? As pain is the sole disabling factor, if some means other than atropinization could be found of controlling this factor, there would be far less difficulty in reestablishing the normal function of the ciliary muscle. It was recalled that, in 1908, Ewing[5] reported the complete relief of the pain of an acute glaucoma within a few minutes after the application of a 50 per cent. solution of cocain to the mucous membrane over the site of the nasal ganglion. One of us[6] has frequently observed the complete control of the pain of an acute iritis by the full cocainization of the nasal ganglion on the corresponding side. If the pain of glaucoma and the pain incident to a congested or inflamed ciliary muscle (iritis) can be controlled by this measure, it seemed likely that it would be equally efficacious in functional hyperaesthesia of the ciliary muscle. About eighteen months ago an opportunity was given to test this theory.

REPORT OF CASES

CASE 1.—*History.*—Rev. J. W. H., aged 34, a Canadian clergyman, consulted one of us (J. G.), Oct. 13, 1921. We give his ocular history in his own words:

"From the age of 16 to 22, I worked in an engineering factory. I worked from 6 a. m. until 5 p. m. in the usual trying conditions peculiar to most factories in those days. Being ambitious, I took up a college course. The lectures were at night and several miles from my home, so that for five years I led a very strenuous physical and intellectual existence. I was very strong, however, and all during that period had no eye trouble of any description. After completing my course at the end of six years, I was a fully indentured engineer. I then decided that I would enter the ministry. Having very little means, I was compelled to take a somewhat difficult course to achieve this. But this is aside of our present object. It was, however, during my first year at the theological college that it became necessary to consult an eye specialist. He ordered spectacles, and I have worn them ever since. After I finished my theological course, I left England and came out to Canada. For six years I did missionary work. During that time I had little or no trouble. After this I came to the city and there was connected with a large city church. I then began to have difficulty in focusing, and during my year there I was compelled to consult a specialist several times. With each consultation there was a change of lenses made.

"I then volunteered for overseas service in Mesopotamia; but owing to very important work that I was given in India, I was not allowed to reach Mesopotamia. Gradually the eye strain increased. So bad did it become that at the end of a year I was rarely without acute pain. This brought on (together with tremendous responsibilities) great mental irritation. During an interview with the general, I flared up and gave him a first-class exhibition of temper. This was so unusual that he put me down as a sick man. I confessed to the head and eye aches. That night he took me to Bombay with him to consult some of the army specialists. They gave further changes of refraction, and ordered me to the hills for a six weeks' rest. At the end of that time I was a little better; but as soon as I took up the work again the old trouble returned. The upshot was that the doctors ordered me home to Canada.

"On my return I consulted an oculist. He said that it seemed to him that the trouble might be some organic nervous trouble and turned me over to a nerve specialist (a psychanalyst). After several months of digging into my complexes, I apparently refused to be harmonized, as I was as bad as ever. Then followed a course of chiropractic. But the spine juggling brought only increased irritation. It was after this series of séances that I went to Beaumaris to recover from the manhandling, when I met you. The rest you know. This, briefly, is the history of my life as far as the eye trouble is concerned. As I look back I believe I have suffered from painful accommodation for about eight or ten years."

Symptoms.—Ocular pain and retro-ocular headache developed almost immediately after the patient began to read: "Both eyes got red-hot. . . . They seemed to swell and protrude." The patient was well set up and muscular, and looked the picture of health. He had had no severe illness. Apart from a slight drooping of the lids, which gave to the face a sleepy expression, and moderate conjunctival hyperemia, there was nothing noteworthy. The pupils were equal and reacted normally. Right vision was 6/22; left vision, 6/22.

Right — .12 — 1.75 CX 10° V 6/6
Left — 1.50 CX 150° V 6/6+

Muscles: Distance, orthophoria; near, exophoria 6°; no hyperphoria; no cyclophoria.

Form fields, full; there was some interlacing of the green and red fields. There was no central color defect. Physical examination was negative. Roentgen-ray examination of the teeth was negative. Under homatropin cycloplegia:

Right + .5 — 2.00 CX 5° V 6/5
Left + .75 — 2.25 CX 170° V 6/5

Treatment and Course.—Atropin, 1 per cent., was then ordered (three times a day for one week). After the first day the eyes became entirely comfortable and remained so throughout the period of atropinization. The test (atropin) gave:

Right + .75 — 2.50 CX 10° V 6/5
Left + 1.25 — 2.25 CX 170° V 6/5

Glasses were prescribed as follows:

Right + .5 — 2.50 CX 10°
Left + 1.00 — 2.25 CX 170°

Accommodation was: Right, 6.00 D; left, 6.00 D. Ophthalmoscopically, the eyegrounds were normal.

One of us (G. S.) reported, Oct. 13, 1921. "Mr. H. has a well marked hyperplastic postethmoid-sphenoiditis."

During the period from October 13 to 25, routine nasal treatment was directed against this condition. October 26, the right nasal ganglion was injected (.5 c.c. of 5 per cent. phenol, 95 per cent. alcohol). November 1, the left nasal ganglion was injected.

The patient returned to his home in Canada, Nov. 11, 1921. He was forbidden to use his eyes for more than five minutes at a time at first, but was instructed to increase the reading periods very gradually, provided pain did not recur. He was given a 3 per cent. homatropin solution to use at night in case the symptoms should reassert themselves. He was also provided with a 1 per cent. atropin solution for another "rest cure," should the pain recur in its former severity. As it was possible for him to relinquish his pastoral duties for six months, he was advised to do so.

He wrote under date of Nov. 27, 1921, "I have not written to you earlier as I thought it would be better to take a couple of weeks and then report on the condition of my eyes. I find the last few days that there has been a recurrence of the pain and sense of strain in the eyes. I resorted to the drops, as ordered, and I am afraid it will be necessary to place the eyes again at rest by a two weeks' application of atropin. The severe headaches from which I suffered have so far not returned, which, as you can imagine, is a great source of relief and gives me every encouragement to hope that the source of the trouble has at last been located. I have given up the parish for six months, as you suggested, and so will give the eyes all the chance that I can to obtain a complete rest."

Feb. 23, 1922, he wrote: "I have had none of the extreme pains at the back of my head since the operation, but the eyes still are troublesome, although there is marked progress. I do not have pain as frequently as I did, and the pain is confined almost entirely to the balls of the eyes; but as to reading, it is next to impossible to read for ten minutes at a time without the pain recurring."

The patient returned to St. Louis, April 8, 1922, complaining of aching through the temples and eyes. Cocainization of the nasal ganglion on either side produced almost immediate and complete relief.

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[5] Ewing: Am. J. Ophth. **25**: 354-355, 1908.

[6] Sluder, Greenfield: Headaches and Eye Disorders of Nasal Origin 1918, p. 230.

April 10, the patient reported that he had been free from pain up to 6 p. m. of the 8th, when it recurred slightly. On the evening of the 9th, pain recurred in the occipital region. April 17, the right nasal ganglion was injected. Three days later the left was injected. Repeated tests yielded identical results, as follows:

Right + .50 — 2.00 CX 5°
Left + .87 — 2.00 CX 165°

which were prescribed.

Nothing more was heard of the patient until Dec. 22, 1922, when, in response to a letter of inquiry, he wrote: "I am sure that both you and Dr. Sluder will be as delighted as I am to know that I am in better health now than I have been for five years or more. On my return from St. Louis in the spring, for a time I was a little shaky. Nothing very acute but a certain discomfort. . . . About the end of July I had a very bad attack, which lasted three days. The pain was acute, both in the eyes and the back of the head. Since that time I have gotten gradually better. I have never now a suggestion of pain in the head, and my eyes are splendid. I gradually took up reading toward the end of September, and now use my eyes as much as I ever did."

On the return of the patient to St. Louis, Jan. 23, 1923, it was possible to verify all the foregoing statements. A final adjustment was made, as follows:

Right + .37 — 1.87 CX 5°
Left + .75 — 1.87 CX 165°

March 17, he wrote: "My eyes still continue in splendid condition. There has been no suggestion of a return of the old trouble, although I use my eyes for reading and writing several hours each day."

CASE 2.—Mrs. L. D., aged 61, gave a typical history of painful accommodation of several years' duration. After estimation of her refraction (under homatropin), glasses were prescribed as follows:

Right + 2.75 + .25 CX 120°
Left + 2.37 + .62 CX 60°

Muscles: Distance, esophoria 1°, no hyperphoria; Near, exophoria, 3°, no hyperphoria. Accommodation: right 1 D; left 1 D.

The patient had the benefit of a group examination, which disclosed nothing but some abscessed teeth, which were promptly extracted. She has been seen at intervals for several years. Systematic reading exercises of increasing duration have been tried on several occasions, but pain and "distress" invariably occur in from ten to twenty minutes. When seen, Nov. 1, 1922, she was very despondent because of severe pain in the eyes which came on a few minutes after beginning to read. November 4, both nasal ganglions were injected. She returned to St. Louis, Jan. 25, 1923. She stated that since the nasal operation "there is freedom from nerve strain around the eyes" and that her "head feels more comfortable." She can now read thirty minutes without discomfort. She was anxious to have the nasal operation repeated, which was done, January 26. At this writing (March 25, 1923) she is still in the stage of reaction following the second injection: hence final conclusions cannot be drawn. This case is admittedly incomplete. It is presented merely to show improvement following a single injection.

COMMENT

A frontal sinus abscess causes pain in the brow, which, almost uniformly, comes on after the patient arises, and stops sometime during the day, the night always being free of pain. Because of its "morning" appearance, in earlier time it bore the name of "sun pain"; because of its cyclic recurrence, it was supposed to be of malarial origin. Such a patient will show pathologic changes in the frontal sinus by roentgen ray, and will have pus in the middle meatus in the nose, unless the outlet is completely occluded; under this condition, there will be great pain, and rupture into the orbit will almost surely follow.

Vacuum frontal headache, not unlike the clinical picture of painful accommodation, uniformly gives a tender point at the upper inner angle of the orbit—"Ewing's sign"[7]—with greater or lesser discomfort on use of the eyes, particularly for near work.

Anterior ethmoiditis causes pain referred to the eyes or behind them; usually pus is found in the middle meatus. Vacuum anterior ethmoidal headache gives rise to similar sensations, and, in addition, there is a point of tenderness at the site of the lacrimal bone. Nasociliary neuralgia is described as tenderness of the nasal bone and discomfort from the pressure of the bridge of spectacles or the guards of eye glasses; Ewing's sign is absent. It is relieved by applications of cocain to the uppermost anterior limit of the nose, the point at which the nasociliary nerve enters. It is doubtful whether disease of the antrum of Highmore ever gives rise to sensations which might be regarded as of ocular origin. All of these disorders are unrelated to painful accommodation, which, it seems to us, is a separate and distinct clinical entity.

For some time it has been known to us that the pain of all eye disease could be stopped by a cocainization block of the nasal ganglion. One of us (G. S.) has observed a case of traumatic keratitis with great pain, which was stopped by cocainization of the nasal ganglion. The only sensation left in the eye was described as the same feeling as "when the cinder first struck the eye"; in other words, the ophthalmic division of the fifth nerve conveyed the sensation first made by the cinder, but the great deep pain of the infected cornea was controlled through the nasal ganglion. Bryan[8] has reported a herpes of the first and second division of the fifth nerve with great pain in the eye. He showed that cocainization of the ganglion stopped the pain in the eye, but did not influence the pain of the first division. He then did an intrasphenoidal cocainization of the upper lateral part of the sphenoidal cell along which the first division runs, with complete relief of the pain in the first division but without abatement of the ocular pain.

From these cases it seems reasonable to infer that the great pain of ocular disorders, iritis, keratitis, etc., is transferred by some path through the nasal ganglion, and it seems to us to follow logically that hyperesthesia of the ciliary muscle may be, in some instances, produced by lesions in that district. Such lesions should be susceptible of satisfactory surgical treatment, but great care should be taken in establishing a differential diagnosis. Let us recall, in this connection, that lower half headache may be of ganglion or sphenoidal origin. In the one case it is controllable through the nasal ganglion and in the other it is not, so that falure to control it through the nasal ganglion does not mean failure of all possible control. In addition to those cases which almost always show pathologic changes in the district, there are others which are controllable by cocainization of the nasal ganglion, but do not always give satisfactory results from injection of it. Of late, one of us (G. S.) has come to think that through the sympathetic there may be exercised an influence on disturbances in distant parts, which, at present, is not at all understood and cannot even be speculated on. Although these cases are relieved by cocainization of the nasal ganglion, injections of it are disappointing. In the case of the clergyman there was a definite postethmoidal inflammation without pus; it was an ideal case for injection. The first injection relieved the great pain from which he suffered, leaving only the painful accommodation; the second injection relieved the painful accommodation, which is quite in line with logical ex[illegible]tio

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[7] Ewing: Tr. Am. Ophth. Soc. 9:60, 1

[8] Bryan, W. M. C.: Personal commun

If, as we believe, the effect of the injection is to bring about an involution of the hyperplastic process surrounding the ganglion, it is not surprising that there may be an interval of several weeks before the patient is conscious of improvement. It is possible, too, that as the number of cases increases, we may meet with disappointments, as some of them may be of sphenoidal origin, or the point of control may be within the sphenoid.

Was injection of the ganglion a positive factor in the improvement of these patients? Would they not have improved as rapidly and as well by accurate correction of the refraction, atropin rest periods and systematic ocular exercise (reeducation of the irritable ciliary muscle)? Our experience indicates that while these measures are necessary and essential in every case and may suffice in the milder examples of this trouble, they are likely to fall short of entire success: that while there is usually improvement there is only rarely a definite cure.

The one conspicuous feature—pain—occurs whenever the ciliary muscle is called into use by the act of accommodation. Other symptoms of asthenopia, if present, are inconspicuous. The pain increases in intensity, the longer the patient uses his eyes, until at last it becomes unbearable and the patient has to desist. It does not terminate with the cessation of near work, but continues for many hours after the accommodation has been inactive.

It is our belief that injection of the nasal ganglion, by eliminating the disabling symptom—pain—is a very real factor in permitting the patient to resume the normal use of his eyes. It is a truism that one shrinks from exercising any bodily function that experience has shown will surely give rise to discomfort, and this disinclination is not solely confined to highly sensitized persons—the so-called neurotics. If, after repeated trials, a patient, equipped with the most exact refractive correction, experiences pain after a few minutes' use of the eyes and finds that his painless reading periods do not become longer, however assiduous his practice and however faithfully he may carry out his physician's orders, he will inevitably despair of ever fighting his way through.

On the other hand, if nasal ganglion injection, by abolishing his painful sensation, reveals to the patient a new power and a new endurance, the early reestablishment of the normal function of the ciliary muscle will not be difficult.

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ABSTRACT OF DISCUSSION

Dr. Lloyd Mills, Los Angeles: This novel application of Dr. Sluder's work is based on the following facts and statements: 1. The sphenopalatine ganglion and its branches become involved in the exceedingly common hyperplastic inflammations of the postethmoid sphenoidal district in the same way that the optic nerve may be affected in postethmoid sphenoiditis. 2. The intense pain of iritis, ocular herpes, glaucoma and keratitis has yielded to cocain anesthesia or to silver nitrate cauterization applied over the sphenopalatine foramen or to the injection of a phenol-alcohol mixture into the ganglion. 3. Injection of alcohol into the ganglion has been followed by sympathetic paralysis in the corresponding eye. Ocular pain or pupillary paralysis occurs but rarely, however, in frank ganglion involvement from adjacent nasal disease, the characteristic symptom of which is the "lower half headache" corresponding to the main nervous distribution. Ordinarily, no branches of the ganglion reach the globe; but this region is prone to anatomic vagaries, and branches to the sixth nerve; the ciliary ganglion and the optic nerve sheath have been noted. An active nervous relation between eye and ganglion functioning through the cervical sympathetic loop is too strained to be credible. A comparison, therefore, of the alleged constancy of sphenopalatine involvement, with the rarity of ocular association, forces the conclusion that these occasional cases represent the occasional anatomic variations already mentioned. The point is capable of proof, however, by the routine cocainization of the sphenopalatine ganglion in a consecutive series of patients with ocular pain, regardless of its cause. If all ocular pain can be relieved by this cocain block, then the constancy of an actively functioning relation between eye and ganglion is sufficiently and practically demonstrated. The difficulties that have hindered the acceptance of alcohol injection of the nasal ganglion have been those of accurately localizing the lesion in the sphenoid, ganglion or vidian nerve, inability to place the injection correctly, occasional severe pain and reaction, frequent necessity for repetitions of treatment, and the rare production of abducens paresis, ptosis and miosis. The possible great and more applicable benefits of the minor measures of cocain blocking and cauterization with silver nitrate have been lost sight of in the difficulties attendant on the severer procedure. The full value of these measures can and should be ascertained conclusively. Dr. Green is to be congratulated on the hopeful line of attack on the distressing condition of painful accommodation which is opened by his ingenious adaptation of Dr. Sluder's work.

Dr. Thomas E. Carmody, Denver: Of the pains in different parts of the fifth nerve, of course, we had knowledge for a long time, and we have paid particular attention to the pains associated with disease of the tonsils and of the teeth; but we had not considered the matter seriously until Sluder's work was made known. Of course, our attention has been called to Ewing's sign, but we do not know whether it involves the sympathetic, or how it is controlled. The pains Dr. Sluder described, which are sometimes referred to the throat from the sphenopalatine ganglion, and occur along the sphenopalatine margin, can be controlled. But those that are referred to the jaw and to the ears are not controlled by cocainizing the sphenopalatine ganglion. As to pain in the eye, I have had very little experience. The patients who complain of this symptom are referred to the oculist. If I do not find any signs of disease, I feel that the oculist should see them first to ascertain whether there is anything in the eye to account for the pain. The possibility of influencing pain in the eye through the sphenopalatine nerve appears to me to be due to the cocain being carried through to the lymphatic spaces. The ciliary branches have no relation, except through the sympathetic and back through the gasserian ganglion and the sphenopalatine ganglion. The point brought out by Dr. Green that many of these patients become neurotic and go from one physician to another, and then collapse, is important. The reason is that we do not go into the case thoroughly enough. The mental condition of the patient becomes such that he is likely to seek relief wherever he thinks it can be obtained.

Dr. George S. Derby, Boston: Although I do not wish to throw doubt on the diagnosis in the cases so well described by Drs. Green and Sluder, yet I think we should all bear in mind the great frequency of various types of neuroses among our patients. In my experience, painful accommodation most often manifests itself as a neurosis, and occurs in those who have been subjected to overwork and overstrain for a considerable period of time, as in the cases reported by Dr. Green, and also in others, especially women who are of unstable, nervous organization. We are beginning now to see in the literature more and more attention paid to this very important subject—witness a paper by Harford in the transactions of an international congress, and one by Lancaster at the last meeting of the academy. Some of these cases are most resistant to treatment, even in the hands of capable neurologists and psychiatrists. A good example of such a neurosis is the case of an ophthalmologist, aged 52, practicing in a New England city of moderate size, who consulted me last December, complaining that he could not use his eyes for close work for more than five minutes without pain. His refraction had been taken repeatedly without result, and a thorough general overhauling had been negative. After a careful study of the case, I made up my mind it was a neurosis, and advised him to see Dr. Austin Riggs in Stockridge, Mass., one of our best neuropsychiatrists. The patient wrote to me later that he went to see Dr. Riggs. He found Dr. Lunt, an associate, writing a paper on the subject, so he collaborated with him from the standpoint of both victim and executioner, with quite successful results. His eyes have been well this winter and now do all the work he asks of them without much, if any, discomfort. I feel strongly that we should carefully consider this question of a neurosis in all these cases of so-called painful accommodation. It is hard to see how cocainization of the ganglion could have any permanent result.

DR. JOHN GREEN, JR., St. Louis: Any one who has observed the almost magical subsidence of pain in iritis after the application of 50 per cent. cocain to the nasal ganglion will no longer doubt that ciliary pain can be controlled temporarily by cocainizing this region. In regard to Dr. Derby's remarks, I am entirely convinced that these cases present a background of nervous instability. That was my conclusion in my first paper on this subject, presented in 1917. Of three cases reported, two were subjected to very careful neurologic and psychic examination, but in spite of every help from the neurologist and psychiatrist, these patients were not definitely cured. They were improved, but they did not reach the point of my clergyman, who has been able to use his eyes eight or ten hours without any discomfort whatever.

DR. GREENFIELD SLUDER, St. Louis: To what extent can the pain of inflammatory lesions in the eye be controlled through the nasal ganglion? It may be controlled by injection of the ganglion, but again injection may fail and subsequent cocainization may succeed. At present an explanation of these variations is unknown. Ocular pain without ocular lesions may depend on a lesion in the nasal ganglion, just as there may be a severe ganglion neuralgia, controllable from the ganglion, without evidence of a pathologic condition. It is understandable that functional eye pain, of whatever severity, from a lesion in the ganglion district should be controllable by injecting it. Patients with "lower half" headache, whose ganglion district appears normal, have had antecedent lesions there. Neurologic problems of the postnasal district are interesting and largely unsolved. It is possible that a "trophic" influence may be exerted over inflammatory eye lesions through the nasal ganglion. The adjective "trophic" may be inexact. Certain it is, however, that following control of pain through the nasal ganglion some intractable inflammatory eye lesions have suddenly begun to improve. Paralysis of the third and sixth nerves occurred once for each nerve. In these cases, the phenol-alcohol passed from the pterygomaxillary fossa upward and outward to the sphenoidal fissure (the tissues were unusually loose). Recovery was complete in three months. Sensory changes have been observed six times in the palate and once in the face. The question arises, Is it the general effect of cocain that controls the pain? Many times the experiment has been tried of heavily cocainizing some other part of the nose. It has always failed to relieve the ocular pain. The case referred to and reported by Dr. Bryan shows very clearly that the painful eye sensation is transmitted backward through the nasal ganglion and not through the ophthalmic division of the trigeminus. One is left with the feeling that it must be the sympathetic that conveys the sensation, which is difficult to understand, since the sympathetic reaches the eye by way of the ophthalmic ganglion of the first division of the fifth. It has been known for years that the sympathetic trunk carries sensory fibers, the cell bodies of which are in the posterior root ganglion. One is tempted to assume that these fibers may explain the phenomena. Ranson states that their threshold is high and that ordinarily they do not transmit painful sensations; but despite the sensory fibers in the sympathetic trunk, there is no anatomic explanation for the fact that eye pain can be controlled from the nasal ganglion, any more than there is explanation for the control of external cricodynia, or complex pharyngeal or esophageal spasm, by anesthetizing the nasal ganglion.

Clinical Notes, Suggestions, and New Instruments

ABSCESS OF FIBROID UTERUS PERFORATING INTO GENERAL PERITONEAL CAVITY

HERBERT E. STEIN, M.D., NEW YORK

The danger of fibroid tumors of the uterus lies not so much in their presence per se, as in the secondary changes that they may undergo, their remote effects on the cardiovascular system, and their pressure on neighboring organs and tissues.

Of 2,274 cases of uterine fibroids reported by Noble, these degenerative changes and complications were noted: necrosis of tumor; myxomatous degeneration; hyaline degeneration; cystic degeneration; fatty degeneration; calcareous infiltration; malignancy; edema; twisted pedicle; uncontrollable hemorrhage, and aberrant sites.

In this large series, suppuration was absent, although its presence has been noted by other authors. However, its infrequency is apparent. In a fairly extensive review of the literature, I have failed to come across the report of an abscess of a fibroid perforating into the general peritoneal cavity. A report of the case seems worth while.

REPORT OF CASE

Mrs. S., aged 44, admitted to the gynecologic service of Harlem Hospital, Aug. 14, 1922, whose family history was irrelevant, had pneumonia at the age of 19. Menstruation, which began at 14, was regular, of five days' duration, profuse in quantity, but not associated with any pain. She had been bleeding for the past five weeks by the vagina. She never had any miscarriages, and had had three normal confinements. During the last few years she had suffered with indefinite pains in the lower abdomen.

The day before admission to the hospital, the patient was seized with severe lancinating pain in the hypogastric region, more marked about the umbilicus. After that, she vomited several times, noticed abdominal distention, and was unable to empty the bowels or evacuate the bladder.

The patient was stout, dyspneic and apparently in pain. The mucous membranes were pale; the heart sounds were of poor quality, and there were asthmatic râles present throughout the chest. Blood pressure was 105 systolic, and 65 diastolic. There was moderate distention and tenderness of the lower abdomen. An indefinite, rather hard mass extended from 2 centimeters below the umbilicus to the symphysis.

Pelvic examination elicited a relaxed perineum, the cervix enlarged, of normal consistency, and at right angles to the axis of the vagina, the external os admitting the tip of the index finger. The fundus was converted into the mass mentioned above; it was fairly tender and about 12 cm. in diameter.

Urinary examination showed: specific gravity, 1.018; a trace of albumin, numerous hyaline and granular casts, and occasional pus cells.

Blood examination showed: red blood cells, 3,200,000; hemoglobin, 60 per cent.; leukocytes, 8,500, and polymorphonuclears, 87 per cent.

The temperature on admission was 100; pulse, 90, and respiration, 20.

On the third day, all the symptoms became aggravated, abdominal tenderness, rigidity and rebound were more general, and the temperature rose to 101.5, with the pulse to 120. A diagnosis was made of fibroid uterus undergoing some secondary changes and causing beginning general peritonitis.

Under gas-oxygen anesthesia, a left paramedian incision was made. The peritoneum was found thick and edematous, and free seropus was found in the peritoneal cavity. The omentum was bound down over the uterus and the tubes. When the adhesions were freed, foul-smelling pus escaped from an opening in the left cornu, which freely admitted a probe. The uterus was about 12 cm. in width, and of an irregular contour. The left tube was markedly thickened and almost black at its proximal half; the [illegible] was open but congested. The right tube was congested. Both ovaries contained small retention cysts. The appendix was markedly inflamed and covered by a fibrinous exudate. Supravaginal hysterectomy, double salpingo-oophorectomy and appendectomy were performed in the usual manner, and the abdomen was closed without drainage. The patient made an uneventful recovery.

A pathologic report by Dr. Gonzales stated: The uterus was 10 by 10 by 10 by 4 cm. in size, with an irregular surface and covered by a greenish exudate in the region of the left tube. The wall contained three fibroids. In the lumen there was a soft, pedunculated, greenish tumor 3 by 3.5 cm. in size, which on cross-section appeared soft and greenish gray. The rest of the endometrium appeared normal. Both tubes were swollen and congested, the left one being covered by the same greenish exudate, its interstitial portion being absolutely gangrenous. The lumen was completely obliterated. A section through the abscess cavity showed the site to be entirely uterine, no interstitial tubal tissue being present. The distal portions of the abscess cavity showed the presence of hyaline degeneration.

COMMENT

A most interesting phase of this case is the source of the infection. I was dealing originally with a fibroid uterus, one part of which was undergoing hyaline degeneration, and another section contained a sloughing submucous polyp. I believe that the active process was due to a thrombus infected from the sloughing polyp becoming lodged in one of the arteries at the bifurcation of the uterine and ovarian vessels on the left side. The condition of the tube did not appear as if it was the original source, particularly as the abscess cavity did not involve the interstitial portion of the tube.

41 West Seventy-Fifth Street.

ACUTE APPENDICITIS IN A CASE OF STRANGULATED HERNIA

Vincent Anthony Lapenta, M.D., Indianapolis

Dr. A. W. Miller, Aug. 1, 1923, referred for examination to me a boy, aged 2 years, who had a large swelling in the scrotum and right inguinal region. The child appeared to be very sick and was vomiting frequently. The pulse was rapid and of good volume, the temperature was normal, and the abdomen was slightly distended. An attempt to reduce the hernia was unsuccessful. The mother reported that incarcerations had occurred at other times, which had been reduced by manipulation; this, however, was the first time that the child had shown such a sick appearance. On account of the irreducible strangulation, an immediate operation was advised.

The patient was admitted to St. Francis Hospital, and under ether anesthesia, a classical incision was made, exposing the constriction near the internal inguinal ring. The contents of the sac, however, could not be reduced. The sac was dissected free from the elements of the cord and opened. A small amount of serohematic fluid escaped. Some firm adhesions at the sac neck, preventing reduction, were separated. The contents of the sac proved to be a long cecum, with a large thickened appendix, showing signs of acute inflammation. The cecum, entirely free of the mesentery, measured fully 4 cm. to the iliocecal valve. The appendix was 8 cm. long and 1 cm. in diameter.

The point of interest in this case is undoubtedly the absence of fever, although there was sufficient inflammation to produce it. While the fever was absent, the toxic manifestations were very evident. The child presented the typical peritonitic face, with abdominal distention and active reverse peristalsis.

The acute inflammation of the appendix was, no doubt, superinduced by the trauma and vascular distention due to the incarceration, making possible the development of a true secondary inflammation. I have often observed that the thermic reaction, both in appendical inflammation and in strangulated hernia, with severe peritoneal reaction, in children below 5 or 6 years of age, is usually in reverse proportion to the intensity of the inflammation present. This seems to me to be a point well worth bearing in mind, since the absence of fever may lead one to temporize, and often with fatal results.

In adults, the temperature remains a trustworthy guide, not second even to the total leukocytic count. In my experience, this criterion has proved to be inapplicable to small children, in whom severe peritoneal inflammation can exist, with comparatively mild thermic elevation, while the leukocytosis is always present.

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TRAUMATIC RUPTURE OF THE PERICARDIUM WITH RESULTING DEXTROCARDIA COMPLICATED BY RUPTURE OF THE DIAPHRAGM AND LIVER *

J. F. Doughty, M.D., Chicago

This type of injury to the pericardium is unusual; the resulting dextrocardia is particularly interesting. I was able to find in the literature only one case of rupture of the pericardium due to trauma,[1] but many due to gunshot wounds.

Miss M. H., aged 35, was knocked down by an automobile as she was stepping off a street car. She came under our observation four days later, complaining of dyspnea on lying down. She maintained the sitting posture constantly. Eating caused a feeling of fulness in the left hypochondrium and was frequently accompanied by a choking sensation.

Orthopnea was present. The cardiac pulsation was not visible on the left side, but the apical beat was observed in the sixth right interspace 4 cm. to the right of the midsternal line. The left border of the heart, determined by percussion, was 2 cm. to the left of the midsternal line, and the right border, 4 cm. There was a rough systolic murmur over the apex. The pulse ranged around 120. In the sitting posture, the blood pressure was 134 systolic, and 84 diastolic.

Expansion of the left thorax was limited. The diaphragm was 3 cm. higher on the left than on the right, and the excursion was 3 cm., in contrast to 6 cm. of the right side.

There was a moderate degree of abdominal distention. Tenderness was generalized, but there was no rigidity. No organs were palpable.

Fluoroscopic examination revealed a dextrocardia with the arch of the aorta in a normal position. The upper level of the stomach was seen at the border of the fourth rib on the left side, in the standing position. When the stomach was partially filled with barium, this was brought out more distinctly. The stomach emptied with moderate rapidity.

After a week of observation, we decided that the extreme discomfort, the inability of the patient to be active, and the possibility of further complications indicated operation.

At operation, we blocked the sixth to tenth left intercostal nerves with 2 per cent. procain solution. The area of the eighth left intercostal space was then injected down to and including the pleura. An incision about 10 cm. long was made in the eighth left intercostal space, beginning at the posterior axillary line and extending anteriorly. This incision was carried down to the pleura. The patient became very unruly, and in spite of additional injection of the pleura, an ether anesthetic had to be given. The pleura was then incised. At this moment the heart and respiration ceased. The operation was at once stopped and resuscitation unsuccessfully attempted.

Postmortem examination revealed a linear tear of the right side of the pericardium through which the heart protruded into the right pleural cavity. A fibrinous exudate was present between the visceral pericardium and the pleura. There was a tear in the left side of the diaphragm easily admitting the hand. In this opening were the stomach and some small intestine extending up into the pleural cavity. There was a small laceration of the diaphragmatic surface of the liver and some bloody fluid in the peritoneal cavity.

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* From the service of Dr. J. R. Buchbinder.

[1] Allan, J.: Rupture of Pericardium, Fracture of Pelvis and Rupture of Urethra, Lancet 2: 331, 1878.

Special Article

EPIDEMIC (LETHARGIC) ENCEPHALITIS AND ALLIED CONDITIONS

SIMON FLEXNER, M.D.
NEW YORK

(Concluded from page 1693)

EXPERIMENTS IN TRANSMITTING ENCEPHALITIS TO ANIMALS

Early in the epidemic outbreak of encephalitis, Dr. Amoss and I undertook the transmission of the disease to animals. The first inoculations performed in the winter of 1919 were made with emulsion of human brain into *Macacus rhesus* monkeys. Materials injected from several fatal cases were without positive result. The effort to secure transmission was continued as opportunity offered, and following the publication of the Mount Sinai experiments, to the materials previously employed for inoculation were added filtered nasopharyngeal washings, filtered extracts of nasopharyngeal mucosa, and cerebrospinal fluid; and the rabbit was substituted for the monkey, as constituting a more susceptible animal species. These attempts, continued through 1920, 1921 and 1922, failed consistently to yield an unequivocal result. Now and again an encephalitis or a meningitis would follow on the intracerebral inoculation of rabbits, but they proved, on close study, to be accidental or intercurrent infections of common bacterial origin.

The at least occasionally successful transmission by others with cerebrospinal fluid of a reinoculable disease in the rabbit led us in the winter of 1922 to 1923 to extend the scope of our study, and through the cooperation of the staffs of the Presbyterian Hospital and the Neurological Institute of New York, a wide variety of such fluid was obtained for inoculation. The cases from which the fluid was derived included such as were diagnosed as epidemic encephalitis; other fluids were taken from cases of neurosyphilis, brain tumor, multiple sclerosis, and a miscellany of nervous and other affections. Coincidentally with this enlarged study in New York, Amoss carried out similar inoculations at the Johns Hopkins Hospital in Baltimore.

It is of interest to record that in the four years during which this investigation was pursued, the number of cases of so-called epidemic encephalitis from which material of one kind or another was obtained for purposes of inoculation numbered two or more score, and that the total number of cerebrospinal fluids from all sources injected exceeded a hundred,[3] with, it is to be noted, a single instance interpretable as a successful infection.

The method employed to secure transmission was the usual one; namely, subdural or intracerebral inoculation of several rabbits, never fewer than two, and with materials coming supposedly from cases of epidemic encephalitis, five or six. As much as 0.35 c.c. of fluid could be safely injected.

The ease with which transmission in this one instance was secured has in this connection quite unusual interest. The patient, a man, aged 51, had been under treatment for neurosyphilis at the Presbyterian Hospital since 1921. He suffered also from aortitis, aortic insufficiency and other symptoms. The syphilitic infection had been acquired sixteen years before. There was at no time any question of epidemic encephalitis; indeed, the patient was ambulatory, coming into the hospital for treatment and then going out. The treatment consisted of mercury and arsphenamin, including arsphenaminized serum injected intraspinally.

With the clear cerebrospinal fluid from this case, which showed globulin by the Noguchi test and was sterile in ordinary cultures, two rabbits were injected intracerebrally, Jan. 4, 1923, each receiving 0.35 c.c. One rabbit developed no symptoms. The other was noted, January 13, to be tremulous and to turn in circles to the left (the side of inoculation), and to keep the head inclined backward and to the left. The rectal temperature was 105.6 F. The jaws were moved with gnashing, but there was no salivation. Death occurred at 3 a. m. on the 14th.

With the brain of this animal, which showed no bacteria in films or ordinary cultures (agar plates; fragments in deep bouillon), other rabbits were inoculated successfully. The transmission of this strain of "virus" has been continued regularly and without failure practically through many generations. It is effective no matter how inoculated; namely, subdurally, by way of the cornea, in which it excites a keratoconjunctivitis, or skin, in which it induces vesiculation, the nares, blood, testis, etc. Salivation, urine retention, paralyses and convulsions are among the regular effects of the inoculations at the present time.

This strain of virus, which we shall call "Beckley," is now in its twelfth generation of unimpaired activity. It is filtrable, glycerol resistant, and noncultivatable either under aerobic or anaerobic (Smith-Noguchi) conditions, as far as determined. Feb. 2, 1923, a second specimen of cerebrospinal fluid was obtained from the same individual, with which five rabbits were injected intracerebrally, 0.35 c.c. again being used. This fluid again gave a strong globulin reaction. All these rabbits developed temperatures of 104 + F., and showed retention of urine, and even fleeting salivation. But these symptoms, if symptoms they were, subsided quickly, and none of the animals succumbed. Three months later they were susceptible to inoculation with so-called "herpes virus."

HERPETIC KERATITIS

Into this account of the experimental investigation of encephalitis which we are following there must now be injected what may at first sight appear to be a foreign and remote topic. As long ago as 1913, Grüter discovered that the condition known as herpetic keratitis in man is communicable by inoculation to the abraded cornea of the rabbit. Although Grüter did not publish this important finding until 1920, it became known, so that it was confirmed by Löwenstein and Siegrist, the former, indeed, making a first communication in 1919. Löwenstein's contribution alone need detain us now, because he identified all forms of febrile herpes by the Grüter corneal inoculation test and definitely separated them from herpes zoster [illegible] vesicular contents of which are innocuous. He also determined some of the properties of the active material of febrile herpes, such as heat lability, nonbacterial nature, infectivity under high dilution, and glycerol resistance. But what is particularly important is his discovery that in the rabbit, in contradistinction to man, the cornea that has recovered from the experimental herpes is refractory to a subsequent inoculation. He drew attention also to the fact that the active material of febrile herpetic eruption (which he speaks of as "virus") must have a wide distribution in the healthy body, since it so readily accumulates and multiplies in the eruptions. No matter what their inciting cause—whether a febrile disease, a drug (e. g., arsphenamin) or a foreign protein, (e. g., milk injection)—the inoculability is the same.

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[3] This number does not include a series of eight specimens of cerebrospinal fluid kindly supplied us by Dr. J. A. Douglas of Winnipeg. The vicinity of this city suffered a severe outbreak of epidemic encephalitis in January. February and early in March, 1923. Particular inquiry elicited the important fact that no relation to influenza was observed, and the latter disease was conspicuously absent. The cerebrospinal fluids were sent by post, so that an interval of about twelve days elapsed between their collection and injection into rabbits. The fluids were first determined to be sterile in ordinary cultures, and were then inoculated subdurally into twenty rabbits. In no instance were infection and subsequent encephalitis provoked.

At this early period in the experimental study of herpes, Doerr, whose interest seems to have been excited by Siegrist, made an observation which has since proved significant. He states that he found by cross resistance tests that corneal and lip herpes are immunologically identical, and especially that the corneal inoculated rabbits occasionally develop general nervous symptoms, such as turnings to the side of the affected eye, tremors, transitory paraplegias, and excessive salivation, in which intances death, often sudden, supervenes. In other words, Doerr observed the symptoms now recognized as indicating the existence of an active encephalitic process in rabbits, and a little later, with Vöchting, on the basis of printed reports alone, identified this general herpetic state with the pathologic complex described shortly before by the Mount Sinai Hospital workers and Levaditi as indicative of experimental epidemic encephalitis of the rabbit.

The two lines of experimental investigation had now converged, and have continued ever since to move closer and closer together. Thus, Blanc and Caminopetros found that the brain of the herpetic encephalitic rabbit provoked corneal herpes, and Levaditi and Harvier that the brain of the epidemic encephalitic rabbit equally provoked a keratoconjunctivitis. Moreover, Levaditi, Harvier and Nicolau showed that in both conditions the brain was capable of inducing vesiculation of the abraded skin of the rabbit, while Doerr and Schnabel established the important fact that the herpetic and the encephalitic viruses in the rabbit cross-immunized against each other. In other words, the two sets of active materials were proved not only to be pathologically and immunologically analogous, but by the available biologic tests to be indistinguishable.

And so the subject has remained, except that each new feature brought to light with respect to one kind of virus is found to apply to the other kind. There are no essential distinctions known as regards the symptoms provoked in rabbits and other rodents, the histologic lesions produced in the cornea, skin or brain, in mode of infection, in manner of recovery and resistance to cross infection after recovery, except in one particular, namely, that in relation to the herpes virus, of which many strains have been investigated as compared with the few studied of the so-called encephalitic virus, stronger and weaker; that is, more or less readily infective and invasive specimens have been secured. And yet there is at least one record of a weak strain of encephalitis virus being obtained by Harvier and Levaditi, although so little study was given it that its real nature remains in doubt. A second example of a weak virus may be found possibly in the report of Netter, Cesari and Durand, in which it is stated that a "virus" was recovered from the brain in a case of encephalitis fifteen months after its onset. This virus, strangely, was irregularly active when introduced into rabbits with the brain tissue of succumbing animals, while the secretion of the salivary gland of the infected animals was uniformly virulent.

CONFLICTING RESULTS

It is not to be supposed that many more investigators than those whose work has already been dealt with have not devoted themselves to the experimental reproduction of epidemic encephalitis. I have already referred to the large number of unsuccessful inoculations made by Amoss and myself, and it is quite certain that not a few others have had similar unfruitful experiences. There remains, however, an intermediate group of experimenters whose published results, on the surface appearing positive, may prove not to have been so. To this group we must now devote brief attention.

The first whose discordant results should be considered are the Italian investigators Ottolenghi, d'Antona and Tonietti, who carried out a series of inoculations on guinea-pigs with the cerebrospinal fluid and blood from thirteen cases of epidemic encephalitis. The injections were made into the peritoneum and the brain. The symptoms induced were vague; somnolence is said sometimes to have been present. Death occurred in from five to thirty-five days after inoculation. The brains of the guinea-pigs that succumbed were infectious for other guinea-pigs and for the cat. Human cerebrospinal fluid instilled into the nose of the animal was effective, and the "virus" was glycerol resistant and remained active a long time in the spinal fluid. Of 215 guinea-pigs inoculated, only thirteen survived. Now, since all other investigators have found the cat insusceptible and the guinea-pigs more resistant than the rabbit, which, it will be recalled, responds to the primary inoculation with such difficulty that several animals are employed for a given sample of encephalitis material, the strong presumption is that the results reported by Ottolenghi and his associates are of extremely dubious nature, and this conclusion is strengthened by the absence in the brain of the animals succumbing to inoculation of the histologic lesions of a definite encephalitis.

Another Italian observer, Bastai, has reported the successful inoculation of the cat with human encephalitis material, and also the cultivation of a "virus" that proved slightly infectious for the monkey and more highly infectious for the rabbit, the latter animal responding to inoculation by way of the brain, eye, peripheral nerves, skin, etc. The eye and skin applications were said to induce herpetic vesiculation. The brain and the blood of the succumbing animals were in turn infectious. It seems necessary merely to remark that the findings described are wholly discordant, and to suggest that the effects described could well have been obtained by inoculation with a moderately virulent staphylococcus.

The outstanding instances of a series of experimental findings which fail to harmonize with those of the Mount Sinai workers, Levaditi, Doerr and Schnabel, are those of Kling and his associates. This investigator has studied the problem of epidemic encephalitis in a comprehensive way. Utilizing the isolation of certain Swedish communities, as his distinguished predecessor

At my request, Dr. McCartney made a systematic examination for the lesions of more than 300 rabbits from the stock of the Rockefeller Institute. He determined their presence in about one half. This high percentage may be unusual, or may be explained by the thoroughness of the examination. Portions from the cerebrum, central ganglions and medulla were regularly sectioned and studied. In other words, McCartney treated these animals as he would have done had they been the subject of actual experiment. The sources of the rabbits examined were various: accidental death (from snuffles, etc.), healthy individuals killed for normal organs, and others used in miscellaneous experiments, such as tumor transplantation, and *Spirochaeta pallida* infection. The presence of the lesions was sometimes ascertained by means of frozen sections, and the brain emulsified and inoculated subdurally into healthy rabbits. No evidence of a communication from one to the other was obtained in this manner.

The observations of Bull and Oliver, and of McCartney especially, have just been confirmed in an interesting way by Twort, who connects the latent brain lesions with a particular kidney affection in the rabbit which, on theoretical grounds, he attributes to a filter-passing virus infection. Twort thinks that he has succeeded in communicating the disease, by inoculation of brain tissue, to a mother and four young rabbits. In my opinion this question of transmission is still to be regarded as an open one.

The accidental or spontaneous lesions consist of a meningo-encephalitis affecting the cerebrum, but more often the basal ganglions and the medulla. The tissues are not everywhere affected, but the lesions tend to be focalized. Perivascular involvement is frequent. The larger, more circumscribed nodules are clearly associated with proliferation and with emigration of cells. Degeneration, even necrosis of the centers, of the latter kind of lesions is encountered. The infiltrating and other cells are mononuclear and polyblastic in type. Polymorphonuclear cells are conspicuously absent.

I have compared these accidental lesions with the published reports and photographs of Kling and his associates and of the Mount Sinai workers. They are often significantly alike. The agreement is more perfect in the case of the Swedish investigators, who dealt only with animals surviving inoculations weeks and months. The Mount Sinai investigators dealt with acute encephalitic conditions also, with which the older preexisting lesions might or might not be associated. It is worth noting here that Kling records the fact that he discovered the encephalitic lesions in about one half (50 per cent.) of the rabbits exposed to the inoculations.

RELATIONSHIP OF HERPES VIRUS AND THE VIRUS OF ENCEPHALITIS

We have become used to attributing epidemics of particular diseases to the operation of single, specific microbic incitants, whence the main interest has centered about the nature of the special etiologic agent in epidemic encephalitis. In spite of a large number of experimental and other studies, agreement on this vital point has not been reached. Transmission to animals of a disease bearing certain resemblances to epidemic encephalitis has, indeed, been accomplished, but under circumstances so infrequent and capricious as to be extremely disquieting. These virtually haphazard results are not sufficiently accounted for by Doerr's suggested analogy with typhus fever infection in the guinea-pig, since, although failure here is not infrequent, success is not uncommon, and all experienced investigators fare alike.

A still greater difficulty arises from the obvious similarities existing between the supposed virus of encephalitis and the proved virus of herpes. This close relationship introduces a strange riddle into the conceptions of the etiology of the encephalitis, on the solving of which rests the fate of the views of the Mount Sinai Hospital workers, Levaditi, Doerr, Schnabel and still others. The infection of rabbits with the virus of herpes follows as easily and as regularly as the implantation of the virus of encephalitis is accomplished with difficulty and uncertainty. But once the latter is effected, the further transmission is as simple in one case as in the other.

The fact that so many of the successful instances of inoculation of the encephalitis virus have been accomplished with nasopharyngeal secretions cannot be without significance. Were these examples set aside and those alone accepted as trustworthy in which the infection was secured with materials of central nervous origin, the already small number of positive transmissions would sink to a still lower level. Hardly any one will contend that the nasopharyngeal secretions, even when filtered, constitute a simple inoculum. Now it happens that Doerr early discovered in these secretions a virus identical with the virus of herpes. Levaditi, Harvier and Nicolau, a little later, made a more systematic study of these secretions in healthy subjects, and arrived at the conclusion that 80 per cent. of such persons carry a virus of attenuated affinity for the rabbit cornea, and also that healthy persons in contact with cases of encephalitis may carry in their buccal secretions the more virulent encephalitis virus. They claim to have detected two strains of the latter among fifteen persons examined, of which one was weak and the other strong. Levaditi distinguishes the two kinds of active materials or viruses contained in the nasopharyngeal secretions as "salivary keratogenic" and "salivary encephalogenic," according as they resemble, on the one hand, the herpes virus or, on the other, the encephalitis virus. Since, however, only one of the encephalogenic strains proved durably effective, it is not evident that Levaditi's findings extend appreciably those of Doerr. Both findings readily accord with the notion of the existence of herpes virus carriers which common experience renders highly probable.

We have seen that the virus of herpes and the supposed virus of encephalitis cannot be distinguished by infection tests, by cross immunity tests, or by chemical tests. Strong and weak strains of both exist; infection with a weak strain protects from inoculation with a strong strain; and both resist glycerol, and both succumb to bile. Even Levaditi's "salivary keratogenic" virus protects against his strongest strain of encephalitis virus.

Protection tests have also been made with human blood serum derived from patients who have passed through attacks of epidemic encephalitis some time before. Amoss and I have found that rabbits that recovered from both the herpes and the encephalitis virus[4] infections yield serum that neutralizes indifferently the two viruses. We have tested also several samples of convalescent human serum taken two or three years after the acute attack of encephalitis. As compared with a few samples of normal human serum, the former was somewhat more protective. The results are not constant and are not conclusive; hence a much larger series of tests is obviously called for. So far as our tests are susceptible of interpretation, they indicate no difference between the herpes and encephalitis strains of virus. Levaditi and Harvier also tested some half dozen convalescent serums taken from one month to one year after the attack of encephalitis. Only the one year serum was neutralizing to the encephalitis virus; the remarkable statement is made that the other samples promoted, rather than retarded infection. Finally, Kling has reported a series of rather ambiguous tests made with convalescent serum and his variety of the encephalitis virus, which he regards as positive and on the basis of which he predicts a serum therapy of epidemic encephalitis.

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[4] The encephalitis virus consisted of the Beckley strain and the two strains kindly sent by Dr. Levaditi and Professor Doerr.

It is, therefore, far easier to identify with than to distinguish from each other the virus of herpes and of encephalitis. Febrile herpes in man is known to be both auto-inoculable and homo-inoculable, and it has now been determined that herpes implanted in the rabbit is reinoculable on the skin of man. Furthermore, Schnabel has shown on himself that the virus of encephalitis, as contained in the brain of the rabbit, induces herpetic skin vesicles. The minute histologic studies of the lesions in the rabbit induced by the herpes and by the encephalitis viruses have disclosed the occurrence of intracellular inclusion bodies regarded by some investigators, probably erroneously, as microorganismal, but indistinguishable in the two conditions.

Since the virus of herpes and of epidemic encephalitis has been brought into so close a relationship, it is pertinent to inquire whether that of herpes has been discovered in the central nervous system in man. The means employed for the detection have been to inoculate cerebrospinal fluid or brain tissue removed post mortem, from patients having herpes, into the eye or brain of the rabbit. The number of examinations carried out in this manner is still relatively small. Two investigators have reported successful inoculation of the cornea in rabbits with cerebrospinal fluid; the others have recorded only failures. Careful study of the protocols of the former does not bring conviction that experimental herpetic infection has certainly been induced. Amoss has tested the cerebrospinal fluid from three patients with marked febrile herpes, and Doerr and Zdansky have employed a number of brain specimens, both without result.

In these brief statements are contained the bare facts of the case. If I were asked to comment on them, I should be inclined to say that they signify only what they affirm and no more. Just as it has been abundantly proved that it is difficult to detect by inoculation a virus in the nervous system of cases of encephalitis, I should expect that it will prove to be difficult to discover there the virus of herpes. The only way to determine ultimately whether the virus of herpes receives sometimes a general distribution throughout the humors and tissues of the body of man is to continue the search for it, and with an assiduity at least the equal of that devoted to the finding of the virus of encephalitis.

THE OUTCOME

We have reached a natural halting place in this discourse. I should beg the indulgence of my audience for so long a presentation, were the circumstances different from what they are. The world has been sorely beset by an unusual epidemic disease which it is the office and the duty of physicians, clinicians and pathologists alike, to study with utmost zeal. Opinions may differ as to whether epidemic encephalitis was definitely known to our predecessors; there can be no such difference of opinion as to the unprecedented extent and destructiveness of the recent pandemic. Experience has shown that epidemic diseases once introduced do not, as a rule, suddenly disappear from a country. I fear, therefore, that we shall have occasional visitations from this one for some years to come. The hope, then, of control lies in a fundamental understanding of the nature of epidemic encephalitis. It would, in my opinion, be very unfortunate should we adopt a premature conviction regarding the etiology of the disease. The recent investigations to which attention has been directed have undoubtedly thrown open a wide new field of bacteriologic research to exploitation. Within it lies perhaps the solution of the problem of the causation of epidemic encephalitis—not yet, as I believe, an accomplished fact.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

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SATURDAY, NOVEMBER 24, 1923

DIET AND INTESTINAL PROTOZOA

The digestive tube is the passageway not only for food but also for various types of micro-organisms. At birth, the enteric tract is free from the latter, so that its contents are sterile. The alimentary canal is soon invaded by living forms, and never again attains a freedom from them. With the advent of modern bacteriology, concern soon arose regarding the effects of the micro-organisms on the contents of the gastro-intestinal tube. Attention was directed to the kinds and numbers of the invaders, to their putrefactive and fermentative potencies, and to the possible physiologic action of the chemical products that may arise. Intestinal putrefaction became linked with "autointoxication" by substances of alimentary bacterial origin. It seemed for a time as if many of the minor ills of human kind might be charged to the products of putrefaction arising in the bowel.

Meanwhile there has come a better realization of the fact that the alimentary bacteria are themselves sensitive to the food content of the intestine—that they not only can alter the organic materials with which they may come into contact but also are affected by their chemical environment. It makes considerable difference, with respect to the survival of certain races of bacteria, whether their pabulum consists largely of protein or of carbohydrate; whether the conditions engendered by the contending micro-organisms in the anaerobic reaches of the bowel tend to become acidic, neutral or alkaline. Many micro-organisms are extremely sensitive to the reaction of the medium in which they are placed. The flora of the healthy stomach consists almost entirely of organisms swallowed. The gastric juice restrains bacterial multiplication, and destroys most of the bacteria that the gastric content may receive. The secretions of the liver, the pancreas and the duodenal mucosa are quite free from bacteria, and tend to "flush out" the upper portion of the small intestine; so that, in health, the duodenum is quite free from living bacteria in the intervals when food is absent, and it contains relatively few bacteria during digestion.[1] Only in the lower portions of the large intestine, where the results of progressive absorption of water and intestinal contents become conspicuous, do bacteria accumulate in larger numbers. Most persons fail to realize, however, that the vast majority of the alimentary bacteria die in the bowel, so that the feces represent in no small measure the accumulated dead bodies of microbial forms. A bacteriologist has estimated that the daily excretion of bacteria in the feces of healthy man may average thirty-three million million cells.

The effects of various types of diet on the bacterial flora of the intestine have been ascertained with considerable detail, in particular with reference to the acidophilic micro-organisms.[2] A summary of the current beliefs was given in a recent issue of The Journal.[3] To a considerable degree, the lactic acid-forming species are antagonistic to the putrefactive anaerobes, and tend to supplant them as the diet affords opportunity for the successful implantation and survival of the acidophilic types. Hegner[4] of the School of Hygiene and Public Health at the Johns Hopkins University has begun a study of the effect of changes in diet on the fauna of the alimentary tract, notably the species of intestinal protozoa that may inhabit it. The possible practical importance of such an undertaking is apparent when one recalls that no therapeutic agent has yet been reported for dealing successfully with the intestinal flagellate infections of man.

The intestinal contents may, of course, be changed directly by variations in the chemical make-up of the food intake. As a consequence, the degree of stimulation of the secretory glands pouring into the intestine may be varied; and there may be profound modifications in the comparative numbers of various sorts of bacteria, their activities, and the character of their secretions or products of microbiotic metabolism. Apparently, this bacterial factor plays a significant part in the establishment of the flagellate endozoal parasites. In Hegner's experiments on rats, for example, no increase was noted in the numbers of trichomonads, so long as the predominant type of bacteria in the cecum was of the putrefactive type; but, as soon as a change to the acidophilus type was brought about by a normal diet to which dextrin was added, trichomonads reappeared in large numbers. It is of interest to note, in this connection, that protozoa are abundant in the digestive tract of many animals that live on vegetation, and are less numerous in carnivorous animals. The optimal habitat of some of the common intestinal flagellates is also likely to vary with modifications of the mediums and bacterial flora within the intestine. Enough evidence has already been gathered to give promise of interesting developments in a comparatively new field of investigation.

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[1] MacNeal, W. J., and Chase, A. F.: A Contribution to the Bacteriology of the Duodenum, Arch. Int. Med. **12**: 178 (Aug.) 1913.

[2] A summary is given by Rettger, L. F., and Cheplin, H. A.: A Treatise on the Transformation of Intestinal Flora, Yale University Press, 1921. This contains an extensive bibliography.

[3] Lactic Acid-Producing Organisms and Preparations, J. A. M. A. **81**: 831 (Sept. 8) 1923.

[4] Hegner, R. W.: The Effect of Changes in Diet on the Incidence, Distribution and Numbers of Certain Intestinal Protozoa of Rats, Am. J. Pub. Health **3**: 180 (March) 1923.

ABSORPTION FROM THE URINARY TRACT

There is at present no comprehensive vantage point from which the phenomena of absorption from the mucous membranes and epithelial surfaces of the body can be surveyed. Attempts at generalization have rarely succeeded, because a uniform principle of function applicable to all the situations has not yet been discovered. A good illustration of the confusion confronting the student of absorption is afforded by the alimentary tract. The intestine is notably a region in which substances in solution can readily penetrate the lining membranes and thus finally enter the blood stream. Yet the gastric mucosa, existing in almost direct continuity with that of the lower reaches of the bowel, is demonstrably impervious not only to products of digestion but even to the universal solvent water. The nasopharyngeal surfaces also have varied absorptive capacities. The conjunctival membranes and the skin are in marked contrast with respect to their permeability to drugs. Such illustrations suffice to indicate the unwisdom of attempting any statement of universal application in the present state of our knowledge.

The possibility of unlike absorptive powers in membranes closely related in both structural and topographic respects has an important bearing in practical ways as well as from more purely theoretical standpoints. Until recently, it has been customary, for the most part, to consider the genito-urinary surfaces and their lining epithelial membranes from a uniform standpoint with respect to their physiologic permeability. The subject has attained a growing importance because the regions involved have become more readily approachable through the improvement in instrumentation and the technic of examination of the urinary passageways. Not only the bladder but also the ureter and pelvis of the kidneys can be explored with considerable facility by the modern urologist; and he does not hesitate to introduce foreign materials, such as instruments and chemical products, into the formerly hidden recesses of the renal excretory system. Catheterization of the ureters for diagnostic ends, therapeutic irrigation of the bladder and its pathway appendages, introduction of solutions and mixtures for pyelography and other types of roentgen-ray examination—these are some of the prevalent procedures in the urologic clinic.

The urinary bladder has long sustained the reputation of being an organ from which little or no absorption can take place. This conception has been extended to include not only water and substances in solution in the urine, but also particulate forms, such as bacteria. Teleologically, the impermeability of the bladder in these respects is readily appreciated. It would be physiologically futile to store excretory products in a structure whence they could readily be returned to the blood from which they had been eliminated. Such reasoning as to purpose in Nature sometimes encounters the opposition of seemingly contradictory facts. In this case, however, there is considerable experimental evidence to show that foreign compounds introduced into the bladder are not promptly absorbed. Hence the practice of irrigating the organ with drugs that might do harm if they found their way into the body at large. There is an accepted belief among physicians that the antiseptics, styptics, local anesthetics, sedatives and stimulants of the mucous membranes exert a purely local or topical effect.

Macht,[1] in particular, has pointed out in his studies at the Johns Hopkins University that the bladder and urethra behave quite differently with respect to their permeability. Whereas the absorptive power of the bladder is very slow, it is marked from the urethra, being more efficient and rapid from the posterior than from the anterior portion. Macht has reminded us that a review of clinical evidence agrees with the experimental findings described above. Poisoning through the urinary tracts has been reported and is not uncommon. On studying such cases, it will be found that absorption of drugs or poisons in them occurred for the most part through the urethra. This holds good not only in the case of the male, but also in that of the female. Absorption from the prostatic urethra in urologic practice is not unknown. In gynecology, poisoning from the short female urethra has also been described.

The latest observations of Magoun[2] at the Mayo Foundation are also in accord with this. According to them, the absorptive powers of the various portions of the urinary tract differ. The kidney absorbs dyes and bacteria to a marked extent. The ureter and urethra absorb these pigments readily, but the bacteria less readily. The bladder, on the other hand, absorbs a very small amount of dye and no bacteria.

The possibilities of absorption from some regions in the urinary tract must be important clinically. It has been suggested, for instance, that in cases of pyelitis the phenomena of chills and fever may be due to the absorption of urine and bacterial toxins. In contrast with the bladder, the kidney, once infected, may act as a focus for secondary bacteremia. Cystoscopic manipulations thus present obvious dangers in the transfer of objectionable materials either into the renal pelvis or into the urethra. To what extent inflammation or injury of the mucous surfaces may modify their normal physiologic properties cannot even be conjectured. The time has come to realize, with Magoun, that drugs introduced into the urethra, bladder, ureters or pelvis of the kidney, whether as opaque mediums, for roentgenologic procedures, or as therapeutic agents, are noxious in proportion to their capability of causing "local" irritation, to their toxicity, and to their absorbability.

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[1] Macht, D. I.: Concerning the Absorption of Drugs and Poisons from the Ureter and Pelvis of the Kidney, J. Urol. **2**: 481, 1918; On the Absorption of Drugs and Poisons from the Bladder and the Urethra, I, Absorption of Apomorphin and Morphin, ibid. **2**: 43, 1918; On the Absorption of Drugs and Poisons from the Bladder and the Urethra, II, Absorption of Various Alkaloids, Antiseptics, Local Anesthetics and Salts, ibid. **2**: 211, 1918.

[2] Magoun, J. A. H., Jr.: Absorption from the Urinary Tract, J. Urol. **10**: 67 (July) 1923.

ERNST SALKOWSKI, 1844-1923

A student of the history of medicine[1] has remarked that in the United States and Canada there are not many physicians who possess even a slight knowledge concerning the manner in which the science of medicine has attained its present power as an agency for good, or concerning the persons who played the chief parts in bringing about this great result. The day has passed, however, when the importance of having some familiarity with the lives and achievements of the "makers of medicine" can be overlooked with the excuse of the "youth" of our country and the unpreparedness of our educational institutions to present the biographic and historical aspects of the subject. Each age steps on the shoulders of the ages that have gone before. The value of each age, Sir Michael Foster once observed, is not its own but is in part, in large part, a debt to its forerunners. A familiarity with the lives and labors of those who gave something of a more permanent sort to medical progress not only lends human interest to the story of this development, but exerts an inspiration that should not be overlooked.

In the active world of today, we are all too prone to forget quickly. Novelties are accumulating at such a rapid rate in this generation that they become part and parcel of the daily life of science and practice almost before their origin and development have become impressed on those who have occasion to deal with them. Perhaps it will be a real service if, now and then, we remind ourselves of the deserts of some investigator who may have failed to attain the recognition or awaken the attention that his labors merit. In this spirit we refer to the recent death of Prof. Ernst Salkowski, for many years director of the chemical division of the pathologic institute at the University of Berlin. Few, indeed, are the persons to whom it has been granted to leave a record of such long, devoted service to medical teaching and research. His scientific activities began in the seventies of the last century and continued until the very year of his death, at the age of 79. It was Salkowski who, in 1876, demonstrated the significance of the excretion of phenols and explained their origin in putrefactive processes in the intestine; thus, Baumann's discovery of phenyl sulphates in the urine of man was supplemented with an explanation of the genesis of the aromatic radical therein. Salkowski, too, first gave an impetus to the study of autolysis, or autodigestion as it has been called —a process that has assumed large significance i pathology. One may recall the autolytic resolution o pulmonary exudates and the autolysis of certain tissues under aseptic conditions. Among various popular tests introduced by him, the reaction for the identification of cholesterol which commonly bears his name finds application daily in the clinical laboratory. Salkowski early discovered the antiseptic properties of benzoic acid, which has played a much discussed part in food preservation; and the use of chloroform as an antiseptic which does not interefere with enzymatic reactions was likewise one of his contributions to biochemical technic.

To physicians, however, these investigative resu are overshadowed by Salkowski's discovery and description of pentosuria, in the last decade of the las century. The peculiarity of the excretion of a 5-carbon sugar, in contrast with the glucose of the diabetic urine, was soon demonstrated to be an anomaly of metabolism. The observation of the persistent elimination of a pentose without apparent detriment to the person concerned has emphasized the necessity of careful differential diagnosis of all cases that exhibit a "reduction test" in the urine. Most of these contributions have long since passed into the permanent possessions of present-day medical science. Let us not forget the part a modest worker played in their development.

Current Comment

NEW EXPERIMENTS ON REJUVENATION

The Journal has commented on the experiments of Steinach and others in the rejuvenation of animals presumed to follow ligation of the vas. Recently Macht and Teagarden,[1] of Johns Hopkins University have performed similar operations on six rats, all more than a year old and showing definite signs of senescence. These were compared with two other animals used as controls. Fourteen additional rats were studied by special methods involving the use of animals operated on and adequate controls. The details of the method leav no doubt as to the scientific character of the experiments. After ligation, a number of the rats showed distinct improvement in general appearance and behavior. They were more active, and several developed a new coat of fur. These changes persisted only for several weeks, however, and the animals gradually relapsed into their usual senile state. Also distinct improvement in muscular coordination and muscular efficiency of the animals was noted, but this was temporary, lasting only a few weeks. It is the belief of the observers that all the changes noted seemed to have been the results of the operation; they assert, nevertheless, that this cannot be said positively without numerous additional experiments. This work would seem to confirm the impression now prevailing that the various rejuvenation experiments constitute at best only a temporary stimulus, and that the inevitable result is relapse, if not, perhaps, a shortening of life because of additional burdens thrown on a senescent organization.

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[1] Buck, A. H.: The Growth of Medicine, Yale University Press, 1917.

[1] Macht, D. I., and Teagarden, E. J., Jr.: Rejuvenation Experiments with Vas Ligation in Rats, J. Urol. **10**: 407 (Nov.) 1923.

BACTERIA IN THE LUNGS

There is little doubt that micro-organisms enter the respiratory passages in enormous numbers through the mouth and the nasal orifices. Spray or droplet introduction is a demonstrable phenomenon. The myriads of bacteria that are discoverable in the outermost nasopharyngeal passages include many that have sustained a reputation for objectionable virulence. Sometimes they gain a sufficient foothold to start trouble. Influenza and pneumonia may be among the consequences of such a result. The surprising feature, however, is the fact that, with seemingly ever present opportunity for infection, the dire consequences rarely ensue. Can it be that, after all, bacteria rarely find their way into the recesses of the lungs where they can make trouble? Some writers believe that in health and under average conditions of dust exposure, micro-organisms only occasionally penetrate below the larynx, owing to the effective "filtration system" of the upper respiratory tract. It is also assumed that bacteria inspired into this region are usually eliminated by ciliary currents, die in situ, or are carried off in the lymphatic channels. We may now regard it as experimentally demonstrated on animals, most recently by Stillman[1] at the Rockefeller Institute for Medical Research, New York, that after the individual is subjected to a dense spray containing bacteria in suspension, the bacteria can actually reach the lungs. Stillman's studies indicate that the further history of the bacteria which have penetrated the lungs depends on the variety of micro-organism concerned. As regards the pneumococcus, the bacteria are disposed of within a few hours. On the question as to whether they are killed in situ, are taken up by leukocytes, or are carried to other parts of the body, the present experiments throw no light. Streptococci persist much longer in the lungs, so that their presence is far more likely to be followed by infection; in fact, a general septicemia usually attends the entrance of hemolytic streptococci, as they persist in the lung for a long time. The results with the bacillus of influenza were more irregular. In the animals tested, at least, it appears that factors other than the presence of the pneumococci in the lungs are necessary for infection. Even in the highly susceptible mouse, neither various modes of exposure to cold nor slight injuries to the mucous membranes through inhalation of irritating vapors or dusts lowered the local resistance. How infection is actually secured with the pneumococcus through respiratory channels thus remains obscure. Apparently this is one of the cases to which we may apply the oft quoted dictum: "While it is most important to know what kind of a disease the patient has got, it is even more important to know what kind of a patient the disease has got."

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[1] Stillman, E. G.: The Presence of Bacteria in the Lungs of Mice After Inhalation, J. Exper. Med. 38: 117 (Aug.) 1923.

SAFE MILK

There is less public discussion about "safe" milk than there was a few years ago. Recognition of the importance of milk as a food and of the fact that it has to be carried long distances to market has established the principle that milk sanitation is a necessity. The procedures involved have at length become fairly well "standardized." Foremost are: 1. Prevention of all possible contamination by those handling the milk on the farm and in the dairy and by proper care of the cow. The utmost refinement of this plan is observed in the production of certified milk or its equivalent, produced and cared for under exceptionally sanitary conditions, and constantly supervised and inspected by a medical milk commission. 2. Pasteurization by one of a variety of commercial methods. Its use has greatly increased in recent years. The general tendency is toward the pasteurization of all market milk except the certified milk, and in some large cities it is compulsory. Tuberculosis is the commonest disease with which cows are affected, and therefore demands particularly careful consideration in connection with milk, although the other possibilities of milk-borne infectious agencies are not by any means negligible. It is pertinent to inquire from time to time, therefore, whether commercial pasteurization conducted, as it must be, on a large scale, actually destroys tubercle bacilli. A careful investigation[1] in a representative American city has shown the presence of these micro-organisms by actual inoculation tests in specimens of the raw milk of average quality delivered to city dealers. It was also demonstrated that pasteurization by the holding process between 142 and 148 F. for thirty minutes destroys the tubercle bacillus in the milk. The commercial process of rendering the milk safe can readily be made efficient; it should never be allowed to fail wherever dependence is placed on pasteurization.

REGURGITATION FROM THE URINARY BLADDER

There is no doubt today that hematogenous infection of the kidney can occur; indeed, it seems likely that this forms a not infrequent method by which disease becomes localized in this organ. In the days when the blood stream was supposed to be singularly free from bacteria, such a conception of infectious invasion of the renal structures seemed somewhat less probable than now. Viable micro-organisms are, in fact, known to be so readily excreted by the kidneys, even without any evidence of local disease, that some writers have actually classed the ridding of the body of infectious material as an important renal function. Transfer of bacteria from the circulating mediums of the body, however, is not the only way by which noxious agents might reach the kidney. It is a matter of every-day occurrence that the urinary bladder becomes infected through the external pathway of the urethra; it is a natural step to assume that through the ureters an almost equally available further channel is presented for reaching the pelvis of the kidney. It must be borne in mind, however, in evaluating such a possibility, that the ureters are not merely possible conductors of urine. A stream of urine directed bladderward is flowing through them, and they are furthermore subject to muscular contractions of a wavelike character that oppose rather than favor the passage of anything in the direction of the kidneys. The possible regurgitation of vesical contents is therefore obviously a problem for study rather than mere speculation. The most recent investigators of the subject, Graves and Davidoff[1] in the Laboratory of Surgical Research at the Medical School of Harvard University, report that they have never seen antiperistalsis in a normal ureter, and in no way have they found it concerned with regurgitation; but the latter does occur, and it seems to depend on a variety of factors, among which a good bladder tone seems to be indispensable. Active pressure usually caused regurgitation; passive pressure never. The degree of ureteral activity seems to have little influence on the process. The upshot of these studies is to render bladder regurgitation accountable for ascending infections of the urinary tract, particularly in the case of vesical-neck obstruction. The decisive facts are based on animal experimentation; but they seem to be sufficient to warrant the conjecture that n man also the hematogenous route is not the only path or infection of the kidney.

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[1] Bartlett, C. J.: Does Commercial Pasteurization Destroy Tubercle Bacilli in Milk? Am. J. Pub. Health. 13: 807 (Oct.) 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Repair of Medical Building.—The board of revenue, November 6, announced that $6,000 would be spent for repairs on the old medical building of the University of Alabama, Birmingham, opposite the Hillman Hospital. When completed, the building will be used for the juvenile court as well as for the nurses' home and hospital.

CALIFORNIA

Southern California Society News.—At the semiannual meeting of the Southern California Medical Association in Los Angeles, November 2-3, Dr. Egerton L. Crispin, Los Angeles, was elected president; Drs. Rexwald Brown, Santa Barbara, and Allan L. Bramkamp, Banning, vice presidents, and Dr. Charles T. Sturgeon, Los Angeles, secretary-treasurer. ——At the annual meeting of the San Bernardino County Medical Society, October 2, the following officers were elected: Dr. John H. Evans, Highland, president, and Dr. Ernest O. J. Eytinge, Redlands, secretary-treasurer.

Hospital News.—A children's ward of forty beds will be erected at the Tulare-Kings County Tuberculosis Hospital, Springville, at a cost of $50,000.——Plans are being completed for a group of six reenforced concrete hospital buildings for the San Francisco Hospital in the Relief Home Tract, to be erected at an estimated cost of $1,750,000.——A solution of the problem of reducing the cost of hospitalization to the middle class is to be worked out by a committee whose appointment was approved by resolution, October 19, at the closing session of the annual convention of the hospitals of California. A resolution which authorizes the appointment of a committee to codify existing hospital laws and gather data on which new legislation covering state hospital regulations, to be enacted at the next session of the state legislature, was also unanimously adopted.——Drs. Milton H. Damron and Frank M. Mikels will open a number of emergency hospitals in Long Beach which will be operated to care for traffic and industrial injuries. The first unit of this system will be opened in the North Long Beach district. These hospitals will be known as the D. & M. emergency hospitals.——The Butts ranch property, north of Richmond, has been selected by the city council as the site for the Harding Memorial Hospital, for which a bond issue of $150,000 is proposed.——The Berkeley General Hospital, Berkeley, is being rebuilt. The first unit of five fireproof wings is nearing completion. When the new buildings are finished, the present structure will be moved to the rear and used for a nurses' school and home.——The new $10,000 nurses' home of the Emanuel Hospital, Turlock, was dedicated, November 2.

CONNECTICUT

The Diploma Inquiry.—The Journal is daily receivin reports of the state investigation into the medical diplom scandal that was recently exposed by the St. Louis *Sta* (The Journal, November 17, p. 1698). Several hundre witnesses will be summoned before the grand jury's inquiry into charges of perjury and conspiracy. Dr. James E. Hair, secretary of the eclectic medical examination board, has returned from his farm in Townsend, Vt., coincident with the calling of the extraordinary grand jury. Harry T. Brundige, special investigator of the St. Louis *Star*, will be the first witness called as he (as "Dr." Harry Thompson) obtained the evidence which led to exposing the "mill." Members of the state board of eclectic medical examiners will then be called. The accused physicians will be called last. The Hartford *Daily Courant* states that more than twenty physicians who are suspected in connection with the frauds have left the state. Some of the suspects who, it is reported, will be called on to testify as to the legality of their medical diplomas are: Arnold H. Brein, Waterbury; Aaron Glass, New Haven; Saverio N. Pennine, New Haven; Nathaniel McCarthy, New Canaan; Bernard I. Kafka, Bridgeport; Paul V. Marzio, New Haven; Isidor Yochelman, who operates the Sydenham Hospital and Clinic, Bridgeport; Etamar A. Mower, Hartford; Harry Chaimson, Hartford; William Levy, Hartford; Samuel Lerner, Bridgeport; George E. Sutcliffe, the St. Louis photographer who admitted buying a Kansas City medical diploma; Dr. Ralph L. White, New Canaan, a member of the state board of eclectic medical examiners, who holds a Kansas City diploma; Michael J'Anthony, Torrington; Aurelius Raphael Dejanis, Bridgeport; Frank Beardsley, Bridgeport; James A. Christian, Fairfield; Anthony R. Campo, Bridgeport; Modestino Coppola, New Haven; Peter Koraitis, New Britain; Harry Braverman, Stamford; Joseph E. Koplowitz, Baltimore; Andrew Pleasant Bush, New Britain; Pasquale Romeo, Bridgeport, and Dr. James W. Bush, New Britain. Several of these men have now left the state; others cannot be found. The majority of these men who showed diplomas from either the Kansas City College of Medicine and Surgery, Kansas City, or the St. Louis College of Physicians and Surgeons, failed at the examinations in July, 1921 and 1922, and passed with good marks at subsequent examinations.——Telegrams were sent by Dr. Hair to the twenty-eight men who had applied for examination at the November 13 examination at the Hotel Garde, New Haven, stating that no examination would be held on that date. Previously Dr. Hair had announced that no candidates from the Kansas City College of Medicine and Surgery or the St. Louis College of Physicians and Surgeons would be considered eligible for examination.——Governor Templeton sent for the deputy comptroller, November 13, to determine whether a $10,000 appropriation made by the 1923 session of the legislature to Columbus Hospital, Bridgeport, could be stopped on finding that Dr. Pasquale Romeo, who is alleged to have distributed many licenses granted by order of the state board of eclectic medical examiners, is president of the institution.——Hartford hospitals have issued notice to the effect that all graduates of the Kansas City College of Medicine and Surgery and of the St. Louis College of Physicians and Surgeons are barred from their institutions.——In an address to the Waterbury Medical Society, November 8, Governor Templeton urged the physicians of the state to take more interest in the affairs of Connecticut and declared that if they studied bills before the general assembly which affect their profession, a situation such as the one now being exposed could not exist.——Some of the physicians accused are threatening to sue the Hartford *Daily Courant* for mentioning their names in connection with the exposure.

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1. Graves, R. C., and Davidoff, L. M.: Studies on the Ureter and Bladder, with Special Reference to Regurgitation of the Vesical Contents, J. Urol. **10:** 185 (Sept.) 1923.

FLORIDA

Hospital Celebrates Anniversary.—St. Luke's Hospital, Jacksonville, has just completed its annual drive in connection with the celebration of the fiftieth anniversary of the founding of the institution. Approximately $50,000 was raised, with which a children's ward will be erected.

Kiwanis Club Child Clinic.—The Jacksonville Kiwanis Club has raised $14,000 by subscription to establish a child clinic in that city. A representative of the National Committee for Mental Hygiene conducted a survey at the request of the club as to ways and means of operating a child clinic for the study of behavioristic abnormalities. Should the clinic not be assured, money on hand will be applied to some problem of child life in the city.

GEORGIA

Graduate Medical School Established.—It is announced that the formal opening of the Atlanta Graduate School of Physicians and Surgeons will take place, April 9, 1924. Dr. William Perrin Nicolson is dean; Dr. Garnett W. Quillian, vice dean, and Dr. Michael Hoke, president of the faculty. Through the generosity of Jacob Elsas a new outdoor clinic building is under construction at Grady Hospital.

Memorial to Physician.—Dr. F. Phinizy Calhoun, Atlanta, and members of his family have made a "founders' roll" subscription of $1,000 to the Stone Mountain Confederate Memorial in memory of the late Dr. Abner Wellborn Calhoun, who at the age of 15 enlisted as a private in the First Georgia Regiment. Dr. A. W. Calhoun was chairman of the Section on Ophthalmology of the American Medical Association, 1882-1883.

ILLINOIS

State Health Authorities at Zion.—Following complaints that there are more than twenty cases of diphtheria in Zion City, the state department of health started an investigation, November 7.

Dinner to Dr. Ridlon.—The colleagues and friends of Dr. John Ridlon, Chicago, will present him, on November 24, with a portrait of himself painted by Carl Bohnen. The ceremony will follow a banquet to Dr. Ridlon on that evening.

Physician Fined.—According to reports, Dr. Alfred Stocker, Rock Island, was fined $500 and costs in the federal district court at Peoria, November 6, when he pleaded guilty to the second count of an indictment charging him with violation of the Harrison Narcotic Law (The Journal, July 21, p. 220).

Hospital News.—Bids were taken November 1, for the construction of a $75,000 home for soldiers' widows at Maywood.——Construction work on the $100,000 addition to St. Margaret's Hospital, Spring Valley, is nearing completion.——Construction work will soon be started on a $70,000 addition to the Silver Cross Hospital, Joliet.

IOWA

Physician Fined.—It is reported that Dr. Frank H. Gaffey, Bradgate, was fined $200 when he pleaded guilty, November 10, at Rock Island, Ill., to driving his automobile while under the influence of liquor.

KENTUCKY

Results of Trachoma Campaign.—In 1912, at the request of the Kentucky State Board of Health, and under instructions from the Surgeon-General of the United States Public Health Service, an officer of that bureau proceeded to Kentucky to determine the prevalence of trachoma in that state. A survey was made in twenty-three counties, more than 18,000 persons were examined and over 1,200, between 7 and 8 per cent., were found to have trachoma. The type of trachoma found here was very severe and its mutilating effects were much in evidence. Numbers of people had been blinded by this disease. As an old resident said, "You coudn't throw a stone in any direction without hitting sore eyes." In 1913, in cooperation with the Kentucky State Board of Health, the Public Health Service established a hospital in the county seat of Knott County. An eye specialist was placed in charge, assisted by two trained nurses and other necessary aids. Thus the problem of eradicating trachoma was undertaken. This campaign against trachoma has been carried on in Kentucky down to the present time. A total of 740 trachoma patients, residents of Knott County, were treated at the U. S. Public Health Service Trachoma Hospital from 1913 to 1922, inclusive. The officer who went over the ground in 1912 recently made another survey of this region. He found that of those who had been found infected with trachoma in 1912, 63 per cent. were known to have been completely cured and only 35 per cent. still remained in doubt. Those cases were placed on the doubtful list which the county health officer was unable to determine from a personal examination as to whether a cure had or had not been effected. Heads of families who for years had been unable to earn a living and mothers unable to care for their children have been restored to usefulness. In brief, it can be said that one of the worst trachoma regions in this country has been practically cleared of the disease within a period of less than ten years.

LOUISIANA

Medical Society Organized.—Forty physicians of southern Louisiana met in New Iberia, October 28, to organize the Third District Medical Association. Dr. Lewis B. Crawford, Patterson, was elected president; Dr. Frank T. Gouaux, Lockport, vice president, and Dr. Harold G. F. Edwards, Lafayette, secretary-treasurer.

MAINE

Hospital News.—The Trull Hospital, Biddeford, closed its doors, November 1, after an existence of twenty-three years, following the death of Dr. J. F. Trull, the founder, some months ago.——A fire at the State Insane Hospital, Augusta, October 31, caused damages estimated at $20,000.

MARYLAND

Personal.—Dr. Arthur J. Davis, Baltimore, was elected a member of the executive committee of the Southern Medical Association and Dr. Howard E. Ashbury, secretary of the section on radiology, at the annual meeting in Washington, D. C., November 12-16.——Dr. Randolph Winslow, professor emeritus of surgery at the University of Maryland Medical School, has gone on a tour of the world.——Dr. Augustus B. Wadsworth, Albany, director, division of laboratories and research, New York State Department of Health, lectured at the School of Hygiene and Public Health, Johns Hopkins University, November 19, on "The Development of Public Health Laboratory Service in New York State."

Southern Physicians Visit Baltimore.—Members of the Southern Medical Association were guests of the physicians of Baltimore, November 16 and 17, after the close of the annual meeting in Washington, D. C. Clinics were arranged, November 16, at the University of Maryland Hospital, Mercy and Johns Hopkins Hospital and at the School of Hygiene and Public Health, Johns Hopkins University. On the 17th, a discussion of the prevention of cancer by the Maryland Cancer Committee of the American Society for the Control of Cancer was held. A dinner was given the members of the association by the Baltimore City Medical Society at Osler Hall, Medical and Chirurgical Faculty Building.

MASSACHUSETTS

Society News.—At a meeting of four western districts of the Massachusetts Medical Society in Springfield, October 26, Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, spoke on "Our Changing Knowledge of Eczema." Drs. James S. Stone, Boston, and Alfred Worcester, Waltham, ex-president of the state medical society, also gave addresses.

Gift Conditional to Progress.—In the will of the late William S. Richardson, who died, October 6, the sum of $75,000 is left to the Massachusetts Homeopathic Hospital, Boston, on condition it keeps pace with the general advancement of medicine and surgery for the next five years. If the hospital is not progressive the fund will go equally to Harvard University and the Sulgrave Institution, which institutions are to receive the remainder of the $210,000 estate.

Diploma Investigation.—Dr. Charles E. Prior, secretary of the Massachusetts Board of Registration and Licensure, is conducting an investigation to ascertain if "diploma mills" have any ramifications in that state, as some of the men who are to appear in the Connecticut grand jury investigation (alleged graduates of either the Kansas City College of Medicine and Surgery or the St. Louis College of Physicians and Surgeons) have claimed that part of their instruction was received at the Middlesex College of Medicine [illegible] gery, Cambridge, Mass.——Drs. Michael M. J'A [illegible]
Aurelius R. De Janis, practicing physicians of
who are said to have applied for examinati

Massachusetts Board of Registration in Medicine and paid their application fees of $25 each, failed to appear at Boston, November 13, to take their examinations. No reason was given for their absence. A certificate declaring that both men were graduated from the St. Louis College of Physicians and Surgeons in 1922 and signed by Waldo Briggs, dean, was received, November 13, by the state board. J'Anthony is said to be practicing in Torrington, Conn., and De Janis in Bridgeport, Conn. It is stated that a charge of perjury may be preferred against Dr. Frank J. Beardsley, of Bridgeport, owing to discrepancies made in his applications to the Connecticut and Massachusetts boards.

MICHIGAN

Chiropractor Sentenced.—According to reports, Paul Philip, a chiropractor of Mount Clemens, was sentenced recently to six months in jail for practicing medicine without a license.

MISSISSIPPI

Personal.—Dr. William H. Aikman has been appointed city health officer of Natchez, to succeed Dr. Eugene B. French, Jr., who resigned last April.——Dr. Charles M. Roberts, Ancon, Canal Zone, has been installed as county health officer of Lee County, to succeed Dr. James B. Black, Jr., Tupelo, who resigned recently.——Dr. W. A. Barnes has been appointed surgeon in charge of the Natchez Hospital to fill the unexpired term of Dr. Augustine J. Podesta, who resigned to enter private practice at Vicksburg. Dr. Edwin Benoist has been appointed house surgeon to succeed Dr. Barnes.

MISSOURI

Personal.—Dr. Stephen H. Ragan, Kansas City, has been appointed surgeon-general of the U. S. Confederate Veterans. Dr. Ragan, who is a major in the medical officers' reserve corps of the U. S. Army, has been in charge of medical aid in every reunion, except two, of the Confederate veterans in the last fifteen years.——Edgar Allen, Ph.D., Washington University, St. Louis, has been appointed professor of anatomy at the University of Missouri School of Medicine, Columbia.——Dr. Eugene M. Lucke, Gray Summit, has been appointed health commissioner of Franklin County.

Hospital News.—The Christian Hospital property in North St. Louis has been sold and will be reconstructed into an office building. New property has been purchased at Carter and Newstead avenues on which the Christian Hospital Association will erect a new building which will cost approximately $350,000 and will have a capacity of 140 beds.——A seventy-five bed hospital will be erected for the Ellen A. Burge Deaconess Hospital, Springfield. The present institution will be used for a nurses' training school.

MONTANA

Hospital Dedicated.—Bishop Lenihan, Great Falls, dedicated the new St. Vincent Hospital, Billings, November 7. The institution was erected at a cost of $750,000 and has a capacity of 150 beds.

State Hospital News.—The Montana State Hospital, Warm Springs, has 1,430 patients. A new wing is being constructed. For the first time the natural warm water from the springs is being used for the treatment of patients.——The state tuberculosis sanatorium, Deer Lodge, has 110 patients.

Get-Together Meeting.—The Western Montana Medical Association at a meeting held recently, decided to hold a banquet and clinical program in Missoula this month for physicians from the surrounding country. A committee on arrangements was appointed with Dr. Frank D. Pease, city and county health officer, chairman.

NEW YORK

Typhoid Carrier Caused Epidemic.—The source of nineteen cases of typhoid fever, which occurred recently in Jamestown, has been traced to a "carrier" on a dairy farm, according to the state health department.

Free Insulin Clinic.—The Harbor Hospital, Brooklyn, has opened a free insulin clinic for the poor under the direction of Dr. Max J. Fein, chief of the metabolic service of Broad Street Hospital, New York City, and the executive committee of the hospital has donated beds for diabetic patients who require hospital treatment.

Examination of Children.—Investigation of the health status of children will be conducted by the New York State Department of Health, division of maternity, infancy and child hygiene at various towns in Nassau County, from November 19-28. All well children from 6 months to 6 years of age not attending school are to be examined without charge.

Bogus Physicians Sought.—The board of health and the New York County Medical Society are on the lookout for more than 100 fake "physicians" who are said to have taken refuge in New York as a result of the investigation in Connecticut regarding the authenticity of their medical diplomas. It is alleged that several are practicing in hospitals in the city.

Medical Center in Queens.—A new medical center is proposed for Queens by the Medical Society of the County of Queens, on the site recently purchased in Forest Hills with money raised by members of the society. The plans provide for one large auditorium and several meeting rooms for the different sections; office accommodation for the allied professions, physicians, dentists, druggists, with a nurses' registry, club room and a medical library.

New York City

Harvey Society Lecture.—Dr. Walter W. Jacobs of the Rockefeller Institute for Medical Research will deliver the third Harvey Society lecture at the New York Academy of Medicine, December 8. His subject will be "Chemotherapy of Protozoan and Bacterial Infections."

Malignant Disease Clinic.—A new clinic for the treatment of malignant diseases of the urinary tract, was opened, November 14, at the New York Hospital by the James Buchanan Brady Foundation. Dr. Oswald Swinney Lowsley, director of the Brady Foundation, and twenty other physicians will be on the staff.

New York Post-Graduate Medical School and Hospital Lectures.—This course of free lectures at 5 o'clock Friday afternoons to which all physicians are cordially invited, will include the following: November 30, "Epidemic Encephalitis," by Dr. Frederick Tilney; December 7, "The Importance of Early Diagnosis in Diseases of the Genito-Urinary Tract," by Dr. Joseph F. McCarthy; December 14, "Radium Therapy" (with moving pictures), by Dr. George Stewart Willis.

Personal.—Dr. Frank J. Monaghan, commissioner of health, has been appointed by acting mayor Murray Hulbert, to represent the citizens of New York on the Fair Coal Price Commission which is being organized in accordance with a proclamation issued by Governor Smith, October 23.——Dr. Harry P. Swift, who has been engaged in public health work with the department of health for fourteen years, has been appointed special deputy commissioner of health to serve without compensation and to perform such duties as may be assigned to him.

Society Celebrates Fiftieth Anniversary.—The New York Laryngological Society, now the Section of Laryngology of the New York Academy of Medicine, which has the distinction of being the oldest laryngological society, celebrated its fiftieth anniversary at the New York Academy of Medicine, November 15. Dr. Arthur B. Duel, a vice president of the academy, presided, and Drs. Henry Hall Forbes and D. Bryson Delavan, gave addresses. Another feature of the meeting was the presentation of a portrait of Professor Ludwig Türck of Vienna, the gift of Mrs. George Morewood Lefferts to the academy. Dr. Thomas J. Harris made the presentation. In connection with this celebration there is an exhibition which will continue two weeks at the Academy of Medicine, consisting of instruments, illustrations, portraits and publications, representing original discoveries, inventions and other contributions to the progress of laryngology made in New York.

OHIO

Chiropractors to Jail.—Three chiropractors of Bellefontaine were convicted of practicing medicine without a license by Judge Pettit, November 1, and were sent to jail for forty-one days on failure to pay fines of $25 each.

Orthopedic Clinics.—A new series of orthopedic clinics will be held under the joint auspices of the medical profession, the state department of welfare, the state department of health, and the Ohio Society for Crippled Children. The academies of medicine in various cities are forming committees to support the work.

Psychiatric Foundation of the Western Reserve.—A group of northern Ohio residents have organized to establish a model health community and nerve rehabilitation center near Cleveland, it was announced, November 5. The charter, which has been taken out under the name of the Psychiatric Foundation of the Western Reserve, will be on the order of the MacLean Institute, Boston, the Friends Hospital, Philadelphia, and the Sheppard and Pratt Hospital, near Baltimore. It is designed as a rest colony and research center. Laboratory equipment will be installed for the investigation of all phases of practical psychology, and the cause and treatment of nervous and mental ailments. The staff will comprise an experienced psychiatrist and a corps of physicians, nurses and aids. The institution will be heavily endowed and will be operated on a cost basis.

Philadelphia

Personal.—Dr. Frederick Hurst Maier has been appointed a visiting chief of the gynecologic department of the Philadelphia Hospital.——Dr. Laura H. Carnell, dean of Temple University, was the guest of honor at the fifteenth annual luncheon of the Temple University Association, held at the Bellevue Stratford, November 10.——Dr. Arthur P. Keegan, who was for more than ten years surgeon of St. Agnes Hospital, has been appointed chief surgeon of St. Mary's Hospital.

Hospital News.—Formal opening of the new administration and tuberculosis buildings of the Philadelphia Hospital for Mental Diseases took place at Byberry, November 9, with Hampton Moore, mayor of the city, the principal speaker. The new building has been named in honor of the late director of the department of public health, Dr. C. Lincoln Furbush, who planned the structure but died before its completion. ——The semiannual luncheon of the managers and staffs of the Women's Hospital, Philadelphia, October 19, marked the opening of the remodeled clinic.

TENNESSEE

Hospital News.—The Junior League Hospital for Crippled Children was opened in Nashville, October 8. The present building is a remodeled residence donated by the Standard Oil Company rent free. An outpatient department has been established, and the social service work of the hospital will be conducted by members of the league.——A new hospital will be erected at Jackson in the near future at a cost of $125,000 it was announced, October 15, at a dinner given by Dr. Jere L. Crook, originator of the plan. The staff of the new institution has been announced as follows: Drs. Charles F. Webb, George L. Williamson, Rufus S. Brown, John T. Herron, Stanford M. Herron, C. P. Waller, Benjamin C. Arnold, S. Dickson and C. W. Davis.——The Wallace-Somerville Sanitarium, Cherry Station, Memphis, is erecting a $30,000 addition.——The general Education Board, New York City, appropriated more than $80,000 to erect an addition to the George W. Hubbard Hospital of Meharry Medical College, Nashville, and thus increased its capacity to 150 beds. The hospital will be opened for public inspection, Thanksgiving Day, November 29.

UTAH

Public Health Laboratory.—In conjunction with the biologic department of Brigham Young University, a county public health laboratory will be maintained in Utah County so that physicians who send bacteriologic material to the laboratory may receive the reports twenty-four hours later free of charge.

WISCONSIN

Chiropractors Cannot Make Eugenic Examinations.—In an opinion handed down by Attorney General Eckern, November 1 he declared that chiropractors are not permitted to make eugenic examinations as they are not included under the title of physicians.

State Liquor License Required.—The state prohibition commissioner has notified Wisconsin physicians that a state license to prescribe liquor is required in addition to the federal permit. But he called attention to the fact that no permits are required after Jan. 1, 1924, for the use of alcohol for sterilizing purposes only. The $10 fee for this use was repealed by the 1923 legislature, effective next year.

Medical Testimony Not Essential.—Judge Stevens of Dane County recently decided that the state industrial commission need not be bound by medical testimony in determining the extent of injuries when they in person see the injured man. In the case in question, medical testimony fixed the disability at less than 50 per cent. The commission saw the injured man and raised the percentage of disability to 50 per cent. which was sustained by the circuit court.

CANAL ZONE

The Gorgas Memorial.—The honorary presidency of the Gorgas Memorial Institute of Tropical and Preventive Medicine has been accepted by President Coolidge, in a letter which was read before a meeting of the board of directors of the organization at the Pan-American Union Building, Washington, D. C., November 13. The President's letter said in part:

> "The organization stands for a world movement to bring the lands and climates of the tropical world into their fullest productivity and service to humanity. This is certain to be one of the great problems of the coming generations, increasingly insistent as the population of the temperate zones shall increase. One of the great accomplishments of the last half century has been the development of sanitary and medical procedures by which the tropics have been made available for the habitation of peoples acclimated to the temperate areas. General Gorgas will always be remembered as foremost among those who have labored intelligently and effectively in this cause, and I am glad to be associated with an organization which proposes to project that great service into the future."

The Gorgas Memorial Institute which will be established at Panama City will have an endowment fund of $5,000,000 raised by popular subscription. The directors will start a drive to raise this fund, Jan. 1, 1924.

PHILIPPINE ISLANDS

Public Health News.—Under the auspices of the Rockefeller Foundation the Philippine Islands Department of Health will inaugurate a campaign to rid the islands of mosquitoes.——According to the annual report of the director of health the birth rate during 1922 increased, and the death rate was lowered. This is attributed to generally improved sanitary conditions.

CANADA

University News.—The University of Toronto is making arrangements for a banquet in honor of Drs. Banting, Best and Macleod, at Hart House, Toronto, November 26, for which about 325 invitations will be issued.——Dr. Samuel Johnston, Toronto, has been appointed lecturer in anesthesia in the University of Toronto.

Banting Research Foundation.—It was announced from London, Ont., October 31, that it is proposed to establish a $1,000,000 Banting Medical Research Foundation. Dr. Frederick G. Banting was the first contributor to the fund, donating $10,000, a portion of his share of the Nobel Prize. The committee to take preliminary charge of the foundation includes Dr. George David Stewart, president of the New York Academy of Medicine, New York; Dr. John Gerald Fitzgerald of the University of Toronto, and Dr. George W. Ross, Toronto.

Free Insulin.—Insulin for free distribution is provided by the provincial board of health of Ontario. Returns received from seven of the fifteen distribution centers indicate a large increase in the number of units of insulin for distribution as follows:

	October	September
Windsor	8,300	4,000
Peterboro'	2,900	1,600
Owen Sound	4,600	3,550
Fort William	850	400
Kingston	9,810	7,300
London	11,200	10,800
Toronto (approximately)	60,000	42,950

Sanipractic Board Bill.—The chiropractors of British Columbia are renewing their appeal to the legislature to give them a legal status independent of the legitimate medical profession. Their case is supposed to be strengthened by association with them of the entire so-called sanipractic profession, a name given to a group including not only chiropractors but also masseurs, dietitians, physical culture experts and others. R. H. Neelands, legislator from South Vancouver, introduced this bill, "The Sanipractic Physicians Act," asking that the sanipractic group be given its own board of examiners, but permitting one member of the medical profession to be on that board.

GENERAL

Investigation of Respiratory Diseases.—The U. S. Public Health Service is undertaking a study of common colds, respiratory diseases and influenza. Certain colleges have been selected and cooperation obtained for this study—Harvard, Johns Hopkins, Georgetown, Howard, Tulane, Ohio State, the University of Chicago and the University of California. It is anticipated this work will extend over a period of two or three years.

Roentgenology Journal to be Enlarged.—The *American Journal of Roentgenology and Radium Therapy*, official organ of the American Roentgen-Ray Society and the American Radium Society will appear in enlarged form in 1924, with more illustrations, abstracts and original articles. Dr. Arthur C. Christie will be the editor succeeding Dr. H. M. Imboden, and Drs. James T. Case, Henry K. Pancoast and William Duane, Ph.D., will be the associate editors. The yearly subscription will be $10.

Nobel Prizes.—The Swedish Academy of Science has awarded the 1923 Nobel prize for physics to Prof. Robert A. Millikan, director of the Norman Bridge Laboratory, Pasadena, Calif., for research concerning electrical unit charges, photoelectrical effects, and isolation of electrons. Professor Millikan was professor of physics at the University of Chicago from 1910 to 1921. The 1923 prize for chemistry has been awarded to Prof. Friedrich Pregl, professor of chemistry, University of Graz, Austria, for work on micro-analysis.

Ohio Valley Medical Association.—At the annual convention of the association in Evansville, Ind., November 6-7, Dr. Leon L. Solomon, Louisville, Ky., was elected president to succeed Dr. Sidney J. Eichel, Evansville; Drs. Murray N. Hadley, Indianapolis, William C. Herman, Cincinnati, and James Y. Welborn, Evansville, vice presidents, and Dr. Benjamin L. W. Floyd, Evansville, was reelected secretary-treasurer. The 1924 convention will again be held in Evansville, and will continue for four days instead of two. The entire area of every state bordering on the Ohio River will henceforth be included in the association.

Mentally Deficient Immigrants.—The medical examiner for the New York State Hospital Commission announces that in the last fiscal year, 4,724 mentally defective aliens have been admitted to the United States under bond and 2,712 without bond, despite the fact that all were mandatorily excluded by medical examiners. This announcement was made October 27, at a conference in New York of insanity experts from various states who proposed the permanent organization of state bodies dealing with insanity in an effort to force the government to assume full responsibility for the situation and bring about corrective measures. New York, Connecticut, New Jersey, Massachusetts, Illinois, Pennsylvania, Rhode Island and the District of Columbia were represented.

Hospital May Refuse Admission to Patients of Cultists.—The question of whether or not the superintendent of the Siskiyou County General Hospital, Yreka, Calif., has the right to deny admission to patients entered at the hospital by chiropractors came to a focus at a meeting of the county board, October 1, when Alfred Burklund appeared before the supervisors with legal counsel and demanded equal privileges with physicians. At the conclusion of a lengthy hearing the board adopted the following resolution:

> *Resolved*, That the board of supervisors vest full discretionary powers in the superintendent of the county hospital in the admission of patients to the county hospital, excepting as provided by law. All patients at such hospital to be under the care or charge of a legally qualified medical practitioner.

Milbank Memorial Fund.—At the recent annual meeting of the American Public Health Association, John A. Kingsbury, secretary of the Milbank Memorial Fund announced that $2,000,000 would be appropriated by that foundation for health demonstrations (The Journal, September 22, p. 1030) to determine which diseases yield more readily to concerted attack; to what extent tuberculosis can be further reduced; whether the infant mortality rate can be lowered; whether diphtheria can be practically eliminated; what preventive methods are most effective in controlling disease, and what constructive measures are most successful in promoting public health. A record will be kept of the cost of each project. Actual work has already started in Cattaraugus County, a typical rural district in the western part of New York State with a population of about 72,000, and in the city of Syracuse with a population of about 175,000. It is estimated that at the end of the five-year period the demonstrations program will be firmly enough established in each community to command complete local support and to serve as an example in disease prevention and health promotion. The origin and purpose of this fund was given in The Journal, Sept. 30, 1922, p. 1154.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hershey Industrial School and Orphanage, Harrisburg, Pa., $60,000,000, by Milton S. Hershey, the chocolate manufacturer.

To found the Washington and Jane Smith Home for Aged People in Chicago, in memory of her parents, $1,000,000, by the will of Miss Emilie J. Smith.

Murphy Memorial Hospital, Whittier, Calif., an additional $150,000 for extension work by Col. Simon J. Murphy.

Van Wert (Ohio) County Hospital, Van Wert, $110,000, by the will of William Jones.

Everett, Wash., for the erection of a hospital, $100,000; $50,000 each, from A. H. B. Jordan and William C. Butler.

St. Francis Xavier Infirmary, Charleston, S. C., $55,625, in a drive for funds.

Bryn Mawr Hospital, Philadelphia, $50,000, the proceeds of the Devon horse show and country fair.

Beth Israel Hospital, New York City, $50,000, donated for the completion of the new building.

Druid City Hospital, Tuscaloosa, Ala., $10,000 for the erection of a nurses' home, from J. T. Horne.

The New Protestant Hospital, Anderson, Ind., $10,000 from the local chapter of the Ku Klux Klan.

Culver Union Hospital, Crawfordsville, Ind., $6,500 by the will of Miss Clara Crawford.

Rockford, Ill., for the establishment of hospital beds, $1,500, by James H. Lake.

Victory Memorial Hospital, Waukegan, Ill., $1,000, by the will of Mrs. Grace Edmonds.

St. Luke's Hospital, Jacksonville, Fla., $1,000, by the Putnam Lumber Company.

Southern Medical Association.—At the final session of the Southern Medical Association held at Washington, D. C., November 15, Dr. Charles L. Minor, Asheville, N. C., former president of the National Tuberculosis Association, was elected president. Other officers elected were: Dr. Robert C. Lynch, New Orleans, vice president; Dr. Thomas A. Groover, Washington, D. C., second vice president; C. P. Loranz, Birmingham, Ala., secretary-manager, and Dr. Marye Y. Dabney, Birmingham, editor of the association's journal. Next year's convention will be held in New Orleans. On the last day of the session, Mrs. Coolidge received the ladies and the President received the entire group attending the convention. The members had previously adopted a resolution declaring they would have the President forego the strain of handshaking. In a brief address, President Coolidge commended the medical profession for safeguarding the health of the nation, declaring that, public health lies at the foundation of all public welfare. "Unless the public health," he said, "is properly conserved and protected, there is very little use for any activity looking toward the promotion of public welfare." The President's address was in the form of a welcome. He spoke of his high regard for the medical profession. He said, because of the high type of men, their advice has been eagerly sought, and has helped to make better citizens.

LATIN AMERICA

Public Health in Brazil.—A campaign is being conducted in the state of Amazonas, Brazil, against hookworm, malaria and smallpox by the state health department. Leprosy is reported as increasing rapidly. In the city of Manaos 440 cases have been reported.

Mental Hygiene in Argentina.—A league for mental hygiene is being planned in Argentina, similar to those in the United States and France. The editorial staff of the *Semana Médica* appointed in 1921 Prof. Victor Delfino as its representative to confer with the Argentine Neurologic Society and others in regard to the organization of a league of the kind in Argentina. The movement has received new impetus from the return of Dr. Helvio Fernández, who has been studying the subject in other countries. He is director of the institute of criminology connected with the national penitentiary.

Joint Meeting of Pediatric Societies.—In 1921 the Pediatric Society of Uruguay visited Buenos Aires to hold joint meetings with the Argentine society. This year the Argentine society visited Montevideo, and two joint meetings were held, besides visits to local medical institutions and excursions. There were seven members in the party from Argentina, besides the president, Dr. Mamerto Acuña. A banquet was tendered by Dr. Morquio. The sessions were presided over by Drs. Acuña, Navarro, Aráoz Alfaro and Cibils Aguirre of the visiting society. Navarro's suggestion was adopted that in future joint meetings of the kind, two special topics shall be appointed for discussion.

Personal.—Dr. Martin Ficker, professor of hygiene at Berlin, has gone to S. Paulo, Brazil, to take charge of the bacteriologic laboratory at the German Hospital in that city. ——The prize awarded by the Buenos Aires medical faculty for the best work published in Argentina during the years 1919-1920, was given to Dr. Guillermo Bosch Arana for his "Cineplastic Amputations." Another prize was awarded to Dr. P. I. Elizalde for his work "Syphilis of the Lungs." The Azara prize for the best work on the flora and fauna of Argentina was awarded to Dr. A. Bianchi Lischetti for his studies of Argentine mosquitoes.——On the return of Dr. E. V. Segura, professor of otolaryngology at Buenos Aires, from Europe as delegate from the medical faculty at the Pasteur centennial and congresses, he was tendered a banquet with addresses by Drs. José Arce, Zambrini and Ayarragaray, concluding with remarks by Dr. Demarest of the Paris medical school, now visiting in Argentina.——The S. Paulo Medical Society has elected Drs. Acuña and A. Olivera of Buenos Aires corresponding members.

FOREIGN

Anniversary of Free Treatment of Venereal Disease.—October 20 was the one hundred and fiftieth anniversary of the first decree in Denmark providing gratuitous treatment for persons with venereal disease.

The Legion of Honor.—In connection with the celebration of the centenary of the birth of Pasteur, the French government made awards in "La Légion d'Honneur" of two "grands officiers," nine "commandeurs," twenty-eight "officiers," and fifty-two "chevaliers."

Public Health News.—Plague has been reported in British East Africa. Seventeen cases with eight deaths occurred in Mombasa. In Uganda 172 cases were reported in one month with 164 deaths.——Epidemic smallpox is reported from Bangkok, Siam, where during the last five months 329 cases have been reported with 184 deaths. Vaccination is compulsory, but enforcement of the law is difficult in certain areas. All persons entering the port of Bangkok are required to be vaccinated before leaving the ship.——Under date of September 21, epidemic cerebrospinal meningitis was reported prevalent in the Witwatersrand area of South Africa, with twenty-nine cases occurring in the white population and 185 cases in the colored population. The infection was stated to be widely disseminated.——In two weeks 12,700 cases of malaria were reported recently from the Bashkir country of the Ural region of Russia and more than 70,000 cases were reported during the first six months of 1923 from the Donetz River region.

Labor and Health in Japan.—It is planned to establish a compulsory labor insurance system for injured or sick workers in Japan who are receiving 1,200 yen or less per year. They will receive 60 per cent. of their wages while disabled, and be given free medical attention; in case of death, funeral expenses will be paid.——Every three years Japan will take a labor census. Factories employing thirty or more workers will be required to report to the government the name and location of factories, kind of business, number of employees, working hours, holidays and rest periods. This will help the government to enforce the recently amended factory law.——In the cotton mills of Japan, four fifths of the workers are women and girls, of whom nearly two thirds are under 20 years of age. Among 177,476 working women and girls, seventy-nine were less than 12 years of age; 32,722 were between 12 and 15 years; 79,656 between 15 and 20 years, and 65,016 over 20 years. The new law requires that children under 16 years of age, and women, will not be employed more than eleven hours a day.

Economy Halts Medical Research in India.—The committee on retrenchment in India recently recommended, among other things, that the payment of research officers from central revenue should be discontinued. The Research Fund Association has nearly $1,000,000 (33 lakhs) in hand derived from government contributions. The retrenchment committee advised that the interest on this money be used to maintain medical research. The drastic proposals put forward by the committee would have meant virtually closing down all research work in India; but instead of abolishing the appointments of the twelve bacteriologists, it is proposed to retain six of them and leave six places unfilled until the financial conditions are more favorable. The establishment of the central research institute at Delhi and the grant of about $161,000 yearly to the Indian Research Fund Association are similarly suspended. The directorship of medical research has also been abolished for the time being, but that officer's duties will be carried on departmentally.

CORRECTION

Cleveland Academy of Medicine.—The Journal, November 3, p. 1532, stated that Drs. J. B. Morgan and H. Van. Y. Caldwell were elected president and secretary, respectively, of the Cleveland Academy of Medicine. It should have read: "At a recent meeting of members of the Academy of Medicine of Cleveland, a golf association was formed, electing Dr. J. B. Morgan president and Dr. H. Van. Y. Caldwell, secretary."

Government Services

The Medical Officers' Reserve Corps

The status of the Medical Section of the Officers' Reserve Corps as of Nov. 10, 1923, shows the relative inadequacy of the present organization to meet the requirements of a major emergency. There are, at present, enrolled in the Medical Section 6,700 officers, as follows: brigadier generals, 17; colonels, 134; lieutenant colonels, 499; majors, 2,185; captains, 2,863; first lieutenants, 981. During the World War, approximately 37,500 medical officers served with the United States Army.

The War Department plan for six field armies calls for approximately 45,000 medical department officers. It is apparent that the progress made since the armistice in the reorganization of the Medical Reserve Corps does not satisfy the country's need. The War Department seeks the support of former officers of the Reserve Corps in the accomplishment of a well organized medical section. Perpetuation of a properly organized medical reserve demands that all graduates in medicine identify themselves with it by seeking appointment therein as soon after graduation as they become eligible.

Support of the medical program for national defense is the medical profession's obligation. This obligation will not be evaded in time of emergency, but it is wise to organize the profession in time of peace. The Surgeon General considers the development of the Reserve Corps his outstanding obligation in the interest both of the profession and of the military service, and desires to enlist the support of all physicians in the promotion of the medical program of the national defense policy.

MEDICAL DEPARTMENT RESERVE UNITS

In addition to completing the enrolment of officers, the present preparedness measures aim to assign these officers to war time positions while there is ample opportunity to determine their relative qualifications and adaptations. Three fourths of the medical officers who serve in war must be assigned to branch assignment units, and the Surgeon General is now engaged in organizing these units. In the organization of reserve hospitals, which constitutes a large part of the branch assignment project, the initiative is being placed in the hands of civil hospitals and medical schools. All general, evacuation and surgical hospitals are to be organized in this way. Each reputable institution of sufficient size is asked to adopt a unit, which will be representative of the institution's staff and will bear the institution's name. These units are simply groups of officers deliberately and intelligently placed and available to step out as the staffs of military hospitals in case of war.

The following is a list of medical department units already authorized and under organization with the name of the commanding officer when there has been one assigned:

General Hospital No. 1, Bellevue Hospital, New York.
General Hospital No. 4, Western Reserve University, Lakeside Hospital, Cleveland.
General Hospital No. 6, Massachusetts General Hospital, Boston; Lt.-Col. James Howard Means.
General Hospital No. 8, New York Post-Graduate Medical School and Hospital, New York; Lt.-Col. John Joseph Moorhead.
General Hospital No. 10, Pennsylvania Hospital, Philadelphia; Col. Charles Franklin Mitchell.
General Hospital No. 21, Washington University Medical School, St. Louis; Lt.-Col. Malvern Bryan Clopton.
General Hospital No. 25, University of Cincinnati College of Medicine and Cincinnati General Hospital, Cincinnati; Lt.-Col. Arthur Charles Bachmeyer.
General Hospital No. 26, University of Minnesota and University Hospital, Minneapolis.
General Hospital No. 27, University of Pittsburgh School of Medicine, Pittsburgh, Lt.-Col. James Delavan Heard.
General Hospital No. 28, Christian Church Hospital, Kansas City, Mo.
General Hospital No. 32, Indiana University School of Medicine, Indianapolis.
General Hospital No. 38, Jefferson Medical College, Philadelphia; Lt.-Col. Henry Keller Mohler.
General Hospital No. 43, Emory University, Emory University, Ga.; Lt.-Col. Frank K. Boland.
General Hospital No. 46, University of Oregon Medical School, Portland, Ore., Major Richard B. Dillehunt.
General Hospital No. 48, Metropolitan Hospital, Dept. of Public Welfare, Welfare Island, New York.
General Hospital No. 50, University of Washington, Seattle, Lt.-Col. James Beaty Eagleson.
General Hospital No. 51, Georgetown University School of Medicine, Washington, D. C.
General Hospital No. 52, Syracuse University School of Medicine, Syracuse, N. Y.; Lt.-Col. Edward Seguin Van Duyn.
General Hospital No. 53, St. Louis University School of [illegible]ne, [illegible] Louis; Col. Hanau Wolf Loeb.

General Hospital No. 54, State University of Iowa College of Medicine, Iowa City; Lt.-Col. Lee Wallace Dean.
General Hospital No. 55, Creighton University College of Medicine, Omaha; Lt.-Col. Hermann Von Wechlinger Schulte.
General Hospital No. 56, University of Oklahoma School of Medicine, Oklahoma City, Lt.-Col. LeRoy Long.
General Hospital No. 57, Western Reserve University, Cleveland City Hospital, Cleveland.
General Hospital No. 60, Iowa Methodist Hospital, Des Moines, Iowa; Major Charles Francis Smith.
General Hospital No. 61, Latter-Day Saints Hospital, Salt Lake City.
General Hospital No. 62, St. Luke's Hospital, Jacksonville, Fla.; Lt.-Col. Stanley Erwin.
General Hospital No. 70, City Hospital, Worcester, Mass.; Lt.-Col. Frank W. George.
General Hospital No. 73, Franklin Square Hospital, Baltimore.
General Hospital No. 75, George Washington University Hospital, Washington, D. C.
Evacuation Hospital No. 1, Johns Hopkins Hospital, Baltimore.
Evacuation Hospital No. 2, St. Luke's Hospital, New York.
Evacuation Hospital No. 4, Washington University School of Medicine, St. Louis.
Evacuation Hospital No. 18, Methodist Episcopal Hospital, Indianapolis; Col. Carleton Buel McCulloch.
Evacution Hospital No. 19, Davis-Fischer Sanatorium, Atlanta, Ga.
Evacuation Hospital No. 20, Flower Hospital, New York; Lt.-Col. Frederick M. Dearborn.
Evacuation Hospital No. 21, St. Anthony's Hospital, Terre Haute, Ind.
Evacuation Hospital No. 22, Milwaukee Surgical Society, Milwaukee.
Evacuation Hospital No. 24, St. Vincent's Infirmary, Little Rock, Ark.; Col. Francis Vinsonhaler.
Evacuation Hospital No. 25, West Suburban Hospital, Oak Park, Ill.
Evacuation Hospital No. 63, St. Margaret's Hospital, Kansas City, Kan.
Surgical Hospital No. 4, Washington University Medical School, St. Louis.
Surgical Hospital No. 5, Western Reserve University, St. Vincent's Charity Hospital, Cleveland.
Surgical Hospital No. 6, Peter Bent Brigham Hospital, Boston; Major Elliott Carr Cutler.
Surgical Hospital No. 7, Hahnemann Hospital, Scranton, Pa.
Surgical Hospital No. 15, Italian Benevolent Institute and Hospital, New York.
Surgical Hospital No. 16, Southern Pacific Hospital, Houston, Texas.
Hospital Train No. 3, Pennsylvania State; Major Matthew Joseph Shields.
Hospital Train No. 4, Alabama State; Capt. William Ernest Warren.
Hospital Train No. 7, Oklahoma State; Capt. Fred. Fenton Jones.
Hospital Train No. 8, New York State; Capt. Joseph Parsons Comegys.
Hospital Train No. 9, Virginia State; Capt. Veolo Oglesby Caruthers.
Hospital Train No. 10, Illinois State; Capt. John Letherman Tombaugh.
Hospital Train No. 11, Pennsylvania State; Capt. William Herbert Kelsea.
Hospital Train No. 17, New York State; Major William Nicholas Maloney.
Hospital Train No. 18, Massachusetts State; Capt. William Bradford Blanchard.
Hospital Train No. 26, New York State; Capt. Robert Spencer Familton.
Hospital Train No. 40, New Jersey State; Major Edward Porter Essertier.
Hospital Train No. 44, California State; Major Daniel Henry Keller.
Hospital Train No. 46, Illinois State; Capt. Francis Theodore Rollins.
Hospital Train No. 48, Oklahoma State; Capt. Richard Franklin King.
Hospital Train No. 54, Kentucky State; Major William Darwin McFaul.
Hospital Train No. 56, Georgia State; Capt. Albert Ferguson Brawner.
Hospital Train No. 60, Missouri State; Major Morgan Leland Clint.
Hospital Train No. 63, Arkansas State; Majcr Sherod Arnold Drennen.
Hospital Train No. 66, Arkansas State; Major William Granville Baird.
Hospital Train No. 67, Illinois State; Major Leon George Brackett.
Hospital Train No. 68, Indiana State; Capt. Irving Henry Willett.
Hospital Train No. 70, Pennsylvania State; Major John Walter Goodsell.
Station Hospital No. 1, Connecticut State; Lt.-Col. Louis Irving Mason.
Station Hospital No. 2, Cook County, Illinois; Lt.-Col. James Alexander Harvy.
Station Hospital No. 4, Indiana State; Major Flavius Jasper Beck.
Station Hospital No. 5, Minnesota State; Major Frederick Edwin Kraft.
Station Hospital No. 6, Michigan State; Lt.-Col. Henry George Berry.
Station Hospital No. 7, Pennsylvania State; Major Clarence Hogue Ingram.
First Army Medical Headquarters, Second Corps Area.
Hospital Center Headquarters "A," New York City.
Convalescent Camp No. 1, Maryland State.
Convalescent Camp No. 2, Virginia State; Major Adam T. Finch.
Hospital Center Laboratory "B," Pennsylvania State; Lt.-Col. Allen John Smith.
General Medical Laboratory No. 1, Slee Laboratories, Swiftwater, Pa.; Col. Richard Slee.
Army Medical Laboratory No. 5, New York State; Lt.-Col. David Marine.
Army Medical Laboratory No. 6, Sixth Corps Area; Major Walter Gelvin Bain.
Aviation Medical Laboratory No. 2, California State; Major Charles Gaskill Stivers.
Aviation Medical Laboratory No. 4, Texas State; Major Albert Fitzhugh Beverly.
Aviation Medical Laboratory No. 5, California State; Major Peter de Obarrio.
Aviation Medical Laboratory No. 6, New Jersey State; Capt. Louis Raymond Burnett.
Aviation Medical Laboratory No. 7, Tennessee State; Major George Edward Campbell.
Aviation Medical Laboratory No. 8, Indiana State; Capt. William Louis Culpepper.
Aviation Medical Laboratory No. 10, Iowa State; Major Murdoch Bannister.
Aviation Medical Laboratory No. 12, Virginia State; Major Joseph Nicholson Barney.
Aviation Medical Laboratory No. 14, Tennessee State; Major Louis Levy.
Aviation Medical Laboratory No. 15, Pennsylvania State; Major Ephraim Ezra Campbell.
Aviation Medical Laboratory No. 16, Pennsylvania State; Major Carl Williams.
Medical Supply Depot (C. Z.) No. 1, New York State; Lt.-Col. Harrie Sheridan Baketel.
Medical Supply Depot (C. Z.) No. 2, Fourth Corps Area.
Medical Supply Depot (C. Z.) No. 3, Illinois State; Lt.-Col. John William Hobbs Pollard.
Medical Supply Depot (C. Z.) No. 4, New York State.
Medical Supply Depot (C. Z.) No. 5, Iowa State.
Army Medical Supply Depot No. 16, Fourth Corps Area.
Army Medical Supply Depot No. 17, Eighth Corps Area.
Army Medical Supply Depot No. 18, Eighth Corps Area.

The foregoing represents a small part of the end to be accomplished. For example, the mobilization plan, based on an army of two million men, calls for seventy-two surgical hospitals, ninety evacuation hospitals and 300 general hospitals. The Surgeon General must have the full cooperation of the country's medical institutions in accomplishing this objective, which is imperative if a reasonable position of readiness is to be attained. The profession will fully appreciate that the manifest embarrassment of preparation in time of strained relations, the likelihood of being thrown entirely on our own resources at the outset, and the appalling measures of gas attack being evolved by military nations, demand full peace time preparations for a national emergency.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 2, 1923.

Imposition of Fine for Error in Diagnosis

In previous letters (The Journal, Dec. 16, 1922, p. 2099, and June 2, 1923, p. 1628) I referred to a decision of the court of appeals of Rouen, imposing a penalty on Dr. Vallet of Vernon for an error in diagnosis, as the result of which he operated on a woman for fibroma when in reality she was pregnant. The fact that Vallet had not made a roentgen-ray examination seems to have influenced the court seriously against him. The decision was thus expressed:

> It is justifiable to consider whether or not Dr. Vallet, in view of the present status of roentgenology, was guilty of neglect in that he did not take advantage of the diagnostic help that roentgenology affords in doubtful cases. Although Prof. J. L. Faure testified before the court that the use of this method of exploration under the existing conditions seemed to him debatable, it is impossible to deny that roentgenology is a means of investigation that is becoming more and more common. From reliable authority, notably, Professor Potocki, Drs. Delherm and Laquerrière, and other well qualified roentgenologists, it appears that, in the matter of disclosing the fetus in utero, while it is true that roentgenography is not applicable during the first months of pregnancy, it does furnish a more or less distinct picture of the fetus from the fifth month on, and especially during the last two months.

At a recent session, the Société d'obstétrique et de gynécologie of Paris raised the question whether or not, in the present state of roentgenography, a surgeon may be justly censured for failing to make a roentgen-ray examination. Dr. L. Bouchacourt, director of the electroroentgenologic laboratory of the Maison municipale de santé, asserted that in the foregoing case the court went too far in declaring the omission of a rentgenographic examination a tort. If Vallet had refused to operate unless he secured a roentgenogram negative as regards pregnancy, and the patient had consente and had been examined by a roentgenologist, the error woul not have been avoided with certainty. Any one with even a moderate experience with obstetric roentgenology knows that in examinations of this kind a negative finding is valueless unless the roentgenologist not merely is skilful but also is provided with a high-power equipment and modern accessories; even under the best conditions, errors are still possible. For instance, Dr. Sejournet recently exhibited before the Société d'obstétrique et de gynécologie of Paris a negative roentgenogram whereas, several days later, the fetus of six months, dead and macerated, was found. The negative roentgenogram had been made in a laboratory of the Saint Antoine Hospital, which has been justly considered, for many years, the alma mater of French roentgenology.

Bouchacourt maintains, therefore, that the court of Rouen was in error in holding that the omission of a roentgen-ray examination constituted culpable negligence on the part of Dr. Vallet. This method of diagnosing pregnancy is not in current use at the present time in France—not even in Paris. Under these circumstances, the court was not justified in imposing a penalty on a practitioner in a small town for not having insisted on a roentgen-ray examination before the operation.

The Control of Venereal Disease in the Army of the Rhine

Dr. Escher, of the army medical corps, recently published in the *Annales des maladies vénériennes* an interesting article on the control of venereal disease in the army of the Rhine. The prophylactic measures adopted include: (1) education and instruction of the men, and (2) regulation and repression of prostitution.

Instruction of the men is accomplished by means of lectures given by the regimental physicians and talks by noncommissioned officers. As a guide for the latter, a syllabus has been prepared which consists of questions and answers. Copies have been sent to each army corps. Each center or subcenter has been provided with a complete equipment of charts, a series of models and colored plates (collection of the Museum of Social Diseases in Dresden), a projecting lantern and a collection of pictures of the American type, with a view to making the lectures more attractive. This combination gives the lecturer an opportunity to stir the imagination of his hearers and to vary the illustrations so as to make the lectures interesting. The Foyer du Soldat (resembling somewhat the Y. M. C. A.) also organizes lectures by civilians, which are also illustrated by films of American origin. In fact, all forms of propaganda are employed in the antivenereal campaign organized by the German prophylaxis groups in the cities of the occupied region: museums, films, etc. The men are assembled in groups and the corps physicians act as guides and give necessary explanations. The regulation of prostitution is not very effective, as regulated prostitution is a small matter as compared with clandestine prostitution, which is widely prevalent in the occupied countries.

As far as possible, the French military authorities endeavor to cooperate with the Germans in the campaign against venereal disease. A joint committee on prophylaxis has been created for each province. The French and German committees study separately the problems of prophylaxis that arise, and then a joint meeting is held, and a plan of action is decided on. Resolutions are then drawn up and presented to the French and German authorities, and on acceptance acquire the force of law. This cooperation extends to each garrison; the French army physician and a physician representing the German government together determine the measures needed to check the spread of venereal disease. Dr. Escher states that collaboration between the physicians of the two nations is excellent. The results obtained during the past year have been so satisfactory that the German authorities have recently expressed the request that meetings of the joint committees be held more frequently on fixed dates.

A Relic

At the recent meeting of the Academy of Medicine, Professor Letulle presented the copy of the doctoral thesis of Laënnec which the latter used in defending his contentions before the examining body. It contains many marginal notes by the author of "Traité de l'auscultation médiate."

Concessions to Japanese Students

The council of the University of Paris has decided, at the suggestion of the president, to grant special concessions to Japanese students whose resources have been diminished or suppressed by the recent earthquake. Japanese students, therefore, who have suffered such losses but who wish, nevertheless, to begin or to continue their studies in the University of Paris will be relieved of all dues that would otherwise be collected for the benefit of the university.

The Selection of Hospital Externs

The Association professionnelle des externes et anciens externes des hôpitaux of Paris has recently addressed to the director of the Assistance publique a letter setting forth the difficulties that confront externs. The situation of students in general is highly unfortunate owing to the increased cost of living. The items of expense of a student in Paris in 1921 were estimated as follows:

A Student's Annual Expenses in Paris in 1921

	Francs
Cost of board and room at 500 francs a month	6,000
Clothing	1,000
Donations for charitable purposes	1,000
University dues (tuition, etc.)	190
Examination fees	55
Total	8,245

This estimate is below rather than above the actual cost today. The price of an exceedingly modest room for a student has risen from 150 to 200 francs, with an extra charge for heat during the winter months. An inquiry during the session of a recent congress elicited the information that, of the 25,000 students attending the university and various higher schools of learning in Paris, more than 11,000 were in need of help. The situation of medical students is especially unfortunate because of the duration of their daily studies, which leaves them no time to earn extra money as do students in other branches. The financial difficulties are still further increased for hospital externs. In view of the existing conditions, the Assistance publique allots to externs the sum of 4 francs a day. Estimating carfare at 3 francs, the daily compensation for the services of an extern amounts to 3 francs, or 1 franc for each hour of active service. The Association des externes requests that the compensation for externs be increased to 300 francs a month. The letter of the association adds that the externs would not have made this request, so natural did it seem to them to give their services gratuitously, were it not for the fact that half of the patients now pay the Assistance publique a relatively high price for the services they receive.

In Memory of Prof. Paul Reclus

M. Léon Bérard, minister of public instruction, in a speech at the dedication of the monument erected in honor of the fallen heroes of Orion, department of Basses-Pyrénées, paid homage to the memory of Dr. Paul Reclus, professor at the Faculté de médecine of Paris, who for many years, was mayor of the commune of Orion and general counselor for Basses-Pyrénées. During the course of the ceremonies, at which Prof. J. L. Faure and Prof. Marcel Labbé of the Faculté de médecine of Paris assisted, Bérard recalled the eminent services that Reclus had rendered to surgery, both operative and educational.

Personal

During the ceremonies to be held in connection with the annual reopening of the University of Paris, November 24, eight foreign scholars and scientists will be granted the title of doctor *honoris causa*. Physicians so honored are: Dr. C. Golgi, professor at the University of Pavia, and Dr. William Williams Keen, formerly professor in Jefferson Medical College, Philadelphia.

American Affairs Seen from Afar

It is curious to note the predilection with which certain journalists discuss matters of which they know little. Journalists of this type are found, unfortunately, even on the staffs of medical journals. I have referred in several letters[1] to fantastic items on America that have appeared from time to

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time in the *Vie médicale,* of which Dr. François Helme, until his recent death, was managing editor. Now the *Temps,* one of the principal dailies in Paris, has published an article by Dr. Henri Bouquet on insulin, for the general information of the public: "The discovery was made in America, where such discoveries are numerous; sometimes the inventions are supposed to be new over there when they concern things we have known for a long time. Other actual discoveries, when they have crossed the Atlantic, are found to have much less importance than was ascribed to them in America." Those who depend on the daily journals for information in regard to American discoveries may perhaps meet with such experience, but the daily press is notoriously not the place to seek exact information on scientific subjects.

LONDON

(From Our Regular Correspondent)

Nov. 5, 1923.

The Panel Struggle

The panel struggle has reached a further stage. The panel physicians have forced the government, as represented by the minister of health, to yield ground, although he had declared that his terms were final. This move will probably lead to a settlement. The Insurance Acts Committee of the British Medical Association, in conducting negotiations for the profession, had its hands greatly strengthened by resignations from the panel, amounting to 94 per cent. of the total physicians. The minister, appreciating the importance of an amicable settlement, made every effort to realize the standpoint of the profession and to arrive at one fair to all parties. In a letter to the British Medical Association, he has made these proposals:

1. He accepts the formula that medical benefit is, with sickness, disablement and maternity benefits, one of the primary benefits under the National Insurance Acts. Other benefits are additional and contingent on the foregoing being first provided. The question as to proper remuneration of the physicians is one to be determined on its merits by the government after due inquiry and negotiation with representatives of the profession. The foregoing is evidently intended to assure the profession that there is to be no control by the friendly societies, which, as stated before, is the main point on which the profession is fighting.

2. An impartial royal commission will be appointed to investigate and report on the whole system, the terms of reference to be agreed on with the profession.

3. Provided the Insurance Acts Committee of the British Medical Association appoints an actuary of suitable standing, the government actuary is prepared to meet him in consultation with a view to satisfying him that all relevant considerations have been taken into account in ascertaining the maximum that can be charged to insurance funds.

4. In England and Wales, $1,250,000 will be provided for the mileage fund and to meet other points raised with regard to rural physicians. These rural physicians, because of the distances they have to travel in visiting patients, have always been worse paid than town physicians—an example of the bungling that always follows government interference in private affairs.

5. A capitation fee of $5 is to be paid for five years (an advance of 12 cents on the previous offer) provided that, if during this period the commission mentioned suggests any material alteration in the conditions of service, the profession shall be free to reopen the question of remuneration.

As an alternative, the minister offers a special court of inquiry to report as soon as possible, hearing any evidence tendered on the part of the ministry, the profession, the approved societies, or other interested parties. This letter has been passed on to the panel physicians by the British Medical Association without any comment or suggestion. A further conference of panel physicians' representatives will take place, November 14, to consider the revised offer.

This offer is considered a victory by the panel physicians and a defeat by the friendly societies. The latter have been saying that if the physicians get more it must be subtracted from their additional benefit. The first declaration by the minister, given hereinbefore, makes clear that no one is entitled to additional benefits unless medical benefits are first satisfied. The societies, on the other hand, describe the minister as having been "brought to heel" by the physicians and as having given away part of the birthright of insured persons. They were promised by the government that if they managed their business prudently they would be able to grant additional benefits to their members, but they consider that this promise has been put behind whatever the physicians demand as remuneration. In a long statement addressed to the minister of health, the Emergency Committee of the societies declares that the allegation that the profession is fighting against domination or control by the societies is merely a cloak to obscure the real object—to secure money. They allege that the government has capitulated to the physicians, not because it was convinced of the merits of the case, but because it was faced with a strike. On no occasion from 1912 onward, when the physicians' fee was a matter of controversy between the profession and the government, were the societies consulted, nor was it proposed to take out of their fund, contributed for other purposes, any sum which might be agreed on between the contending parties. They declare that this is sheer spoliation, and that the sum which the minister proposes to take out of the societies' funds would provide the insured with an addition to their sickness benefit, or, alternatively, would provide the whole insured population with dental treatment. The sums paid in 1920 and 1921 to the physicians exceeded the sums paid in sickness benefit to the insured. The chairman of the committee described the minister's proposal as one to take away from the workers' fund $3,800,000.

The Nobel Prize and the Chair of Physiology at University College, London

The appointment of a young physiologist, Prof. A. V. Hill, F.R.S., of Manchester, to the chair of physiology at University College, London, is an event of the first importance in the medical world. In recent years, by the variety and importance of its original work, the Cambridge school, founded by Michael Foster, has been a leader. Next to it in this country is University College. Here, in succession, the chair of physiology has been held by a line of distinguished men whose names are written deep in British physiology—Sharpey, Burdon-Sanderson, Schäfer and Starling. On vacating his chair and introducing Professor Hill, Professor Starling described him as the leading British physiologist of his generation. Therefore a brief account of his unusual career and outlook should be of interest. Educated at Trinity College, Cambridge, where he was third wrangler in the mathematical tripos in 1907, he was led by Sir Walter Fletcher, F.R.S., then tutor of the college, to take up physiology. J. N. Langley, professor of physiology at Cambridge, suggested that he should investigate the oxidative removal of lactic acid by measurements of the heat production. Fletcher and Hopkins had just published their fundamental work on the formation of lactic acid in muscles during exercise, and its removal during recovery. Hill continued their work; but, approaching it as a mathematician and physicist, adopted a totally different technic. In 1911 he worked for six months in Germany. He visited Bürker at Tübingen, and studied the technic of myothermic observations. There he met Paschen (professor of physics), from whom he obtained the galvanometer used in his later work. Returning to the physiologic department at Cambridge, then in the zenith of its fame, he worked side by side with a distinguished galaxy —Langley, Gaskell, Keith Lucas, Hopkins (who was discovering vitamins), Barcroft and others. Like Hopkins, Hill worked in a disused coal cellar. Professor Hill would like to regard the Nobel prize as a recognition of the Cambridge school and the wonderful collection of celebrated men among whom he worked in the laboratory. In spite of the inadequate accommodation, he regards the Cambridge Laboratory in 1912-1914 as the finest physiologic department that has ever existed. During the war, he did remarkably varied work. He was first an instructor of musketry. Then he formed and became director of the Anti-Aircraft Experimental Section of the Ministry of Munitions, in which he collected a number of physicists, mathematicians and engineers, who worked on the various problems of ordnance and instruments, fuses, range finders and sound locators, which were raised by the development of aircraft attack and defense. After the war, he resumed the investigation of muscular activities, working (by a different technic) along lines parallel to those of Meyerhof of Kiel. Hill had scarcely begun his duties at University College when the announcement was made that the Nobel prize for medicine had been divided between him and Meyerhof. Other researches which have added to Hill's reputation are on the physical chemistry of the carriage of gases by the blood, the nature of nervous excitation, the elasticity of living arteries and the calorimetry of animals.

Professor Hill brings to physiology the unusual training of the expert mathematician and the physicist, and therefore much is expected from the school over which he presides. Thanks to the Rockefeller Foundation, the physiologic department of University College has been rebuilt and considerably extended, and is the best equipped in this country. Many American students resort to it and receive a warm welcome. In his inaugural lecture, entitled "The Present Tendencies and Future Compass of Physiological Science," Hill attributed the present high standard of physiology in this country largely to the fact that here it is not the handmaiden of medicine, any more than physics is the handmaiden of chemistry. It has "its own needs, its own inspiration, its own problems, its own methods. Physiology is fundamentally the science how the living creature works, and should no more be led by apparent utility than physics is." But he is not indifferent to the needs of medicine in its "grievous and urgent problems." Of the present tendencies of physiology, the unparalleled advance in biochemistry in the last few years represents perhaps the most important one. Indeed, some enlightened and progressive chemists see the future development of organic chemistry partly in the realm of physical chemistry, but largely in that of biochemistry. In the past, biochemistry has dealt with comparatively simple problems, mainly with the analysis of the material of which the living cell is composed after it is dead. But when alive the cell presents a far more complex problem, to which biochemistry is now turning.

"Modern physics is getting inside the almost visible structure of the atom, chemistry inside the visible structure of the molecule, anatomy inside the visible structure of the tissue, and biochemistry inside the visible structure of the cell." Other tendencies which he described are toward a redistribution of duties between physiology and anatomy, toward the study of comparative physiology on the zoological side, toward a development of instrumental technic, and toward recognizing the importance of investigating normal man as the "experimental animal."

Humane Slaughtering

"Humane Slaughtering in Relation to Public Health" was the subject of the second annual Benjamin Ward Richardson memorial lecture, given by Sir Arthur Newsholme. He referred to Richardson as a chief promoter of the human regard for suffering, which distinguished the last from the preceding centuries. Newsholme advocated the closing of the smaller slaughter houses, where the maximum cruelty, nuisance and demoralization were found. He considered that a vast mass of avoidable suffering was associated with animal slaughtering in this country. There was more cruelty in the preliminaries of slaughtering than in the actual slaughtering itself. It ought to be possible to devise a method of slaughtering, possibly electrical, which would obviate the terrors of anticipation and avoid the uncertain cruelties of the present methods.

The Urine of the Monotremata

At a meeting of the Medical Sciences Club of South Australia, held at Adelaide University, Prof. T. B. Robertson made a report on the urine of a monotrema, *Echidna aculeata,* which is of great interest because it shows another connecting link between the lowest order of mammals, and birds and reptiles. It may be remembered that, like the latter, this curious Australian group has a single genito-urinary and intestinal aperture (cloaca), and lays eggs. Robertson's analyses show that the urine of *Echidna aculeata* is of the mammalian type in that 88 per cent. of the total nitrogen output is in the form of urea. But it differs from that of the majority of mammals in containing a considerable quantity of uric acid, 36 mg. per hundred cubic centimeters. In all mammals, except man and the chimpanzee, of which the urine has been investigated from this point of view, it has been found that uric acid is wholly or almost wholly absent, its place being taken by allantoin. The urine of *Echidna* could not be obtained in sufficient quantity for the direct determination of allantoin. The urea was determined by the urease method; and by autoclaving another specimen with concentrated hydrochloric acid, the ammonia derived from urea and allantoin was determined. The difference between the ammonia determinations in the two cases afforded a measure of the content of allantoin. Allowing for experimental errors, the uricolytic index, or percentage of uric acid converted into allantoin, did not exceed 25, whereas in other mammals it exceeds 90. The lowest uricolytic index previously observed in mammals, other than man and the chimpanzee, was obtained in a marsupial, the American opossum, which has been found to have an index of 79. *Echidna aculeato* therefore resembles mammals in that the greater part of the nitrogenous output is in the form of urea; but it resembles birds and reptiles in its inability to convert uric acid into allantoin.

MEXICO CITY

(From Our Regular Correspondent)

Oct. 27, 1923.

Research on the Wassermann Test

In the thesis required of all new members of the Academy of Medicine, Dr. G. González Aréchaga took as his subject some experiments on the technic of the Wassermann test. With each of his 178 subjects, he used three different methods: (1) alcoholic extract of syphilitic liver as antigen, and complement fixation at 37 C.; (2) the same antigen with complement fixation at 12 C. for four hours, and (3) Kaplan's cholesterinized antigen and complement fixation at 12 C. Among the subjects were twenty-four apparently healthy persons, and 154 patients with various stages of congenital or acquired syphilis. In addition, a similar comparative study was made with the cerebrospinal fluid of thirty-three of these patients. The results showed no errors in the positive reactions obtained with cholesterinized antigen and icebox incubation. Both modifications of the original technic yielded a rather significant increase in the proportion of positive tests, as the positive results with the three met[illegible] [illegible]unted, respectively, to 42.8, 5[illegible] and [illegible] p[illegible] [illegible]gures appear low, they are really representative, as the group included patients under treatment and a number in the tertiary stage of the disease. Among the tests on the cerebrospinal fluid, the results with the three different methods were 54.5, 72.7 and 93.9 per cent., respectively. The hemolytic system used in all three methods was rabbit-antisheep. While the number of cases studied was small, its real importance consists in calling the attention of physicians in this country to the advantages of the Jacobsthal-Kaplan technic. This method has not been much used in laboratories here, as many workers, in accordance with European views, fear the danger of false positives and unnecessary complications of serologic work.

Congress on Criminology

As announced in advance in The Journal, there has just been held a national congress on crime, at which a number of the subjects discussed were closely related to preventive or curative medicine. Stress was laid on the need of vigorous measures to suppress the use of habit-forming drugs in prisons; and to facilitate medical examination of all criminals, and jail hygiene. Among the resolutions approved, some favored the establishment of juvenile courts and the suppression of the death penalty. It should be added that police reports show that murders and assaults have somewhat increased, especially in the last five years. The question of the sterilization of criminals was treated rather superficially, and ignorance of the subject among editorial writers is so great that the newspapers attacked the proposal, assuming that castration was intended as a substitute for other forms of punishment. They even overlooked the fact that at the recent congress on child welfare, the section of eugenics had already gone on record as favoring the measure. There was some surprise that the congress did not discuss the subject of medical experimentation in human subjects, as the second congress on tabardillo (typhus fever) approved a resolution recommending such experimentation, provided the prisoners consented. It seems, however, that no such measure can be enforced in Mexico, as the present criminal code specifically forbids it.

More Wizardry

Not many months have elapsed since a physician from San Francisco gave, in one of the dependencies of the National University, a lecture advising the use of electronic apparatus. Now, one Eugenio Leante has used the same place to exploit, in two lectures, his revolutionary views on medical subjects. The lectures by this so-called physician would be ludicrous, were it not for the fact that they were given on the university premises and had, in a way, official approval; one lecture was dedicated to the present secretary of education. Among other things, Leante asserted that: "pathogenic germs are not the cause of disease"; "to keep well one must guard against vices and not microbes"; "there is only one disease," and "smallpox vaccination should not be compulsory." He referred to Coué, whom he does not consider a pioneer; to Abrams, with whom he found fault for devoting too much importance to diagnosis, and finally to Pasteur, whom he attacked bitterly, explaining that the famous scientist was not a physician.

Dr. Ricardo Rode, a bacteriologist, was kind enough to take "Dr." Leante seriously, inviting him, since he did not believe in bacterial pathogenicity, to submit to an operation minus the usual aseptic precautions or to an inoculation with tetanus or diphtheria germs. The lecturer, however, declined graciously, flattering his foe with the designation "illustrious." In their eagerness to please Secretary Vasconcelos, of the department of education, several newspapers advertised Leante freely, published his picture on the front page, and stated that he had been appointed an "honorary doctor" by the Free School of Homeopathy. It must be pointed out that this free homeopathic school is a rudimentary institution to which a few tired working men go in the evenings to receive a few lessons, and where they obtain a degree in one or two years. It is regrettable that Mr. Vasconcelos should encourage propaganda against vaccination in a country such as Mexico where it is so much needed, and should destroy the harmony that ought to exist among government authorities. Antagonism must inevitably result between the department of public health, which is urging enforcement of vaccination as provided in the sanitary code and has even advised and ordered revaccination, and the department of education, which is pleading through unqualified lecturers for the spread of smallpox, a disease that was attacked by King Charles IV, more than a century ago.

Unconstitutionality of Industrial Compensation Law

The state of Vera Cruz enacted some time ago several laws compelling employers to furnish complete medical assistance and full pay to industrial workers who might be sick or injured, regardless of the nature of the disease or injury. Physicians employed by the state were sole judges when employers and employees disagreed as to the duration of the sickness or possible malingering. The employers, however, took a case to the federal courts, and the district judge for the state of Vera Cruz has decided that the law is unconstitutional.

BUDAPEST

(From Our Regular Correspondent)

Oct. 22, 1923.

Handicapped Children in Hungary

The annual meeting of the Hungarian Medicopedagogic Society was held, October 16 and 17. The first speaker was Dr. Paul Ranschburg, professor of neurology at the University of Budapest, who spoke on the means for combating the bodily deficiencies of children. He stated that in Hungary the number of children who are blind, deaf and dumb, insane, crippled, bodily and mentally deficient, or suffering from severe speech defect exceeds 100,000. The total population is only about 8,000,000. Many of these defects are preventable, and some are curable. Only a minority are attributable to pathologic conditions; the remainder are caused by poverty and neglect. Restoration of defective sense organs is still a utopian dream, but the situation is not quite without hope. The experimental transplantation of eyes by Koppanyi, in Vienna, affords a glimpse of possible new roads. Dr. Ranschburg related the case of a soldier, who lost a hand from a shrapnel wound. In its place one of his feet was sutured. This "hand" acquired a capacity of sensation within a relatively short time, and later, after prolonged exercise, such motor function that the man could work with a scythe and a hoe. Deafmutism is frequently associated with cretinism, and may recover with cure of the latter.

M. Philipp Rokenbiller, state secretary of the ministry of justice, discussed morality in the community. He related the case of a small girl who was obliged to undertake the care of the family in consequence of the death of her mother, and who killed a brother and sister to prevent them from dying of starvation. When interrogated by the police magistrate, she replied: "Well, you blame and curse me now, and you weep; but when we were starving, nobody did anything to help us." It is impossible to change morals by street patrols and police raids. To illustrate the effects of social conditions, he quoted the example of a drunken English woman. Of her 834 descendants, 106 were illegitimate, 187 prostitutes, 142 beggars, 64 workhouse inmates, 76 criminals and 7 murderers. Professor Joseph Imre, teacher of ophthalmology at the University of Budapest, spoke on blindness. He deems it absolutely necessary that the vision of school children be examined at stated intervals. Many children discontinue school because the parents do not know that proper glasses would enable the children to learn successfully. Prof. Michael Horwath spoke on the prevention of lameness. Many bodily deformities could be improved and some of them entirely cured; all are of slow development, and there is ample time for recognition and diagnosis. The worst evil is the stupidity of parents, who follow the advice of a neighbor to do nothing, as the child will "outgrow it."

Dr. Leopold Szondi, assistant at the pediatric clinic, spoke on the prevention of mental deficiency. About 45,000 such children are registered in the country, and the number of those not registered is probably as large. About one out of every eight or nine of these deficiencies is inherited from defective parents or is due to parental syphilis. If both father and mother are defective, 99 per cent. of the offspring will be defective. In countries where mental and physical examination is a legal prerequisite to marriage, the number of imbeciles is diminishing.

David Geguss, the chief justice of the juvenile court, discussed the community causes of the demoralization of children. The children of Budapest are surrounded on the streets by dirt, miserable dwellings, cold, illness, starvation and famine. Life on the streets is undisciplined and immoral; prostitution is carried on openly. For ten years, Geguss has fought for the erection of a juvenile detention home, in which young delinquents may be segregated from adults, from whom they learn only immorality and the hatred of work. He has suggested a special juvenile police force, which, however, has remained a plan only. From 80 to 90 per cent. of the young women are infected. The police refrain from making raids because the hospitals cannot accommodate the vast numbers.

Dr. Edmund Gangel, lecturer on forensic medicine at the University of Debreczen, spoke on the causes of lowered moral standards. They are due, he said, to faulty social adjustments: adverse family conditions, unemployment, and misery combined with alcohol, primitive intelligence of parents, brutal treatment, litigation between parents, and the neglect of children consequent on the employment of the parents. Motherlessness is a frequent cause. He asked for the development of a social policy, a radical change in dwellings (the state should build new homes), and prohibition of the sale of immoral books to children. If the next generation is to be educated properly, there must be fewer criminals and prostitutes permitted in their midst.

BERLIN

(From Our Regular Correspondent)

Oct. 27, 1923.

Pediatric Congress

At the recent congress of the Deutsche Gesellschaft für Kinderheilkunde, the principal topic on the program was "Internal Secretions." Professor Birk of Tübingen discussed the thymus gland. He asserted that in the anatomic structure of the gland there is no evidence of an endosecretory function. The results of experimental research are contradictory. Many investigators regard the gland as essential to life; others, however, including Birk, declare that loss of the thymus is unimportant; and the changes in the bones that have been observed are due to operative trauma, infection, and other causes. The tetanic manifestations Birk ascribes to a disturbance of endocrine balance, though he admits that there may be a remote effect of loss of the thymus on the parathyroid glands. Retardation of growth alone seems to have any direct connection with loss of the thymus. A secretion of the thymus gland also has a hypotonic effect on the heart and blood vessels, and a stimulative action on lymphocytes.

According to Thomas of Cologne, the central layer of the suprarenal gland degenerates during the first months of life, and its function is assumed by the medulla. In anencephalic monsters this change has already taken place during the fetal period; the immediate cause is always malformation of the brain. If certain portions of the brain are lacking, the embryonic suprarenal does not develop normally. Later changes in the brain exert no influence. Thomas discussed also the relations of the suprarenals to the gonads, the changes in the suprarenals in infections and avitaminoses, and the epinephrin content of the suprarenals under various circumstances, including hypo-adrenalism.

Schiff of Berlin discussed the function of the thyroid gland, and emphasized the inactivity of the colloid-free and iodin-free thyroid as shown by experiments on tadpoles. He considered also the question whether thyroidal hormones occur in the mother's milk. According to Schiff, thyroidal affections of childhood may be divided into two groups, according as there is or is not evidence of changed activity of the gland. He discussed acquired myxedema, the influence of the thyroid on growth, the importance of roentgenographic examinations to determine whether the myxedema is congenital or acquired, the relations between the thyroid and the nervous system, and the effects of the thyroid on metabolism. He showed, from experiments, that thyroidal substance exerts no influence on catabolism in infants, as it does in adults. He admitted that the thyroid is affected in endemic goiter, but asserted that the pathogenesis of endemic cretinism is different from that of sporadic cretinism. Hypothyroidism is rare in children. In many cases in which the clinical findings seem to point to hypothyroidism, no objective proof can be furnished. For purposes of diagnosis, Schiff attaches the greatest importance to the progression of the symptoms. Exophthalmic goiter is rare in children. Whether hyperthyroidism is more frequent has not been shown. The benign adenomas, which have been observed more frequently since the war, present no demonstrable disturbances in thyroidal secretion. Estimations of basal metabolism are the best test of the existence of hypothyroidism or hyperthyroidism. In hypothyroidism, the electrocardiogram also has some diagnostic value. Finally, the therapeutic use of thyroid substance was discussed. In nephroses it has been employed with varying success. Schiff has never succeeded, by administration of thyroid, in relieving the edema of spasmophilic children. Thyroid extract may be used in treating obesity, but Schiff is not convinced that there is such a thing as thyreogenic obesity. He has observed no improvement from the use of thyroid in anemia, but in benign adenomas the results are good. In myxedema the improvement, even with prolonged administration, progresses only to a certain point and then ceases.

Gött of Munich regards the anterior lobe of the pituitary body as one of the most important of the glands that influence growth; disturbance in its activity may result in dwarfism; hypersecretion leads to gigantism. Acromegalous changes occur in children, but true acromegaly has been diagnosed with certainty in only one case. Obesity, of typical distribution, is related to loss of function of certain parts of the pituitary body. In this form of obesity basal metabolism is not diminished, but the specific dynamic effect of the food intake is reduced. Gött called attention to the correlation of the pituitary body with the other endosecretory glands. The administration of extract of the anterior lobe has a favorable effect in some cases.

Free Consultation Service for Students

At the State Academy of Music in Berlin, a free consultation service has been opened for students suffering from affections incident to their profession. The service is in charge of Dr. Kurt Singer, who will also lecture on the medical aspects of music. Dr. Singer is director of the Berlin physicians' glee club.

Marriages

Thomas Johns Robinson, Taunton, Mass., to Miss Eileen Roach Curley of East Bridgewater, October 30.

William D. Stroud, Philadelphia, to Miss Agnes Hutchinson Shober of Rosemont, Pa., September 19.

Eugene Weatherly, Athens, Ga., to Miss Amanda Lee Thurman of La Fayette, recently.

T. Perceval Gerson, Los Angeles, to Miss Vera Daniels of Pasadena, Calif., November 3.

William Edward Grove to Miss Lucy Mellinger, both of Johnstown, Pa., September 20.

Joseph A. Carr, Olyphant, Pa., to Miss Eleanor M. Bonner of Philadelphia, October 27.

Daniel Carson Goodman to Miss Alma Rubens, both of New York, recently.

Thomas G. Scott, Norwood, Ohio, to Miss Hazel Boaz of Cincinnati, recently.

Albert J. Bowles to Miss Lillian Anderson, both of Portland, Ore., recently.

Deaths

Charles Gray Wagner, Binghamton, N. Y.; Medical Department of Columbia College, New York, 1882; lecturer on insanity at the Sage School of Philosophy (Cornell University) 1896-1900; member of the Medical Society of the State of New York; the American Psychiatric Association; formerly president of the American Medico-Psychological Association; superintendent of the Binghamton State Hospital since 1892; formerly on the staffs of the Presbyterian Hospital, New York, and the Utica (N. Y.) State Hospital; associate editor of the *American Journal of Insanity*, 1884-1892; aged 67; died, November 5, of chronic nephritis.

John Walter Perkins ⊕ Kansas City, Mo.; Medical School of Harvard University, Boston, 1886; formerly professor of surgery at the University of Kansas School of Medicine, Rosedale; superintendent of the University Hospital; at one time on the staffs of St. Margaret's Hospital, Kansas City, Kan., and St. Joseph's Hospital, Kansas City, Mo.; aged 63; died, November 2, of pneumonia.

Robert Graham Wiatt ⊕ University, Va.; Medical College of Virginia, Richmond, 1914; assistant professor of roentgenology at the University of Virginia Department of Medicine, Charlottesville; served in the M. C., U. S. Army, during the World War; aged 39; was instantly killed, November 2, in an automobile accident.

Alexander E. Garrow, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1889; assistant professor of surgery at his alma mater; on the staff of the Royal Victoria Hospital; aged 61; died, November 8, of heart disease.

George Bancroft Gale ⊕ Newark, N. J.; Medico-Chirurgical College of Philadelphia, 1896; member of the American Psychiatric Association; served in the M. C., U. S. Army, during the World War; aged 55; died, October 6, of heart disease.

Jose Lugo Vina, San Juan, P. R.; National School of Medicine, Mexico City, 1884; secretary of the Porto Rico Insular Board of Health; veteran of the Spanish-American War; aged 67; died, October 1, following a long illness.

John L. Priestman, Neponset, Ill.; Chicago Medical College, 1881; member of the Illinois State Medical Society; president of the State Bank of Neponset; aged 66; died, November 9, at Los Angeles, of cerebral hemorrhage.

Ezekiel Price Murdock, Chicago; Rush Medical College, Chicago, 1880; Civil War veteran; formerly superintendent of schools in Streator, Ill., Shelbyville, Ill., and Memphis, Mo.; aged 78; died, November 14.

Edison George Blaisdell, Bridport, Vt.; University of Vermont College of Medicine, Burlington, 1871; member of the Vermont State Medical Society; aged 76; was killed, October 16, when he fell from a tree.

George H. Turner, Douglasville, Ga.; Southern Medical College, Atlanta, 1898; served in the M. C., U. S. Army, during the World War; aged 45; died, October 23, at New Orleans, of cerebral hemorhage.

Joseph Jeremiah Flannery ⊕ Des Moines, Iowa; Medical Department of Drake University, Des Moines, 1900; on the staff of the Mercy Hospital; aged 46; died, November 3, of bronchopneumonia.

Charles Harvey Zellner, Allentown, Pa.; Johns Hopkins University Medical Department, Baltimore, 1904; died, September 13, in New York, of injuries received in an automobile accident.

Robert Christian King, Hellertown, Pa.; Bellevue Hospital Medical College, New York, 1878; member of the Medical Society of the State of Pennsylvania; aged 67; died, September 30.

Lincoln P. Parkhurst, Grand Rapids, Mich.; Rush Medical College, Chicago, 1886; member of the Michigan State Medical Society; aged 58; died, November 3, following a long illness.

Nathan Silverstein, Scranton, Pa.; Jefferson Medical College of Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; aged 38; died, September 22.

Albert H. Simmons, Girard, Ill.; American Medical College, St. Louis, 1882; member of the Illinois State Medical Society; aged 67; died, November 1, of cerebral hemorrhage.

George Clarence Bluestone, New York; Syracuse (N. Y.) University College of Medicine, 1920; aged 26; died, September 6, of injuries received in an automobile accident.

Clarence Elmer Barton ⊕ Baker, Ore.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1905; aged 48; died, October 26, at St. Elizabeth's Hospital, of tuberculosis.

Curt Edwin Hildebert Nicolai ⊕ New York; University of Leipzig, Germany, 1881; on the staff of the Isabel Home; aged 66; died, October 25, of cerebral hemorrhage.

Wales Buel, Walesville, N. Y.; Bellevue Hospital Medical College, New York, 1867; formerly health officer of Whitestown; aged 87; died, October 23, of heart disease.

James H. McLain, Eaton, Ill.; Kentucky School of Medicine, Louisville, 1888; aged 58; died, October 8, of tuberculosis of the intestine and cirrhosis of the liver.

Clement A. Stone, Hastings, Neb.; John A. Creighton Medical College, Omaha, 1900; member of the Nebraska State Medical Association; aged 47; died, October 30.

Daniel B. Henry, Northville, Mich.; Detroit College of Medicine and Surgery, 1896; aged 51; died, October 29, from injuries received in an automobile accident.

James Foster Scott, Jr., Clovis, N. M.; Tennessee Medical College, Knoxville, 1896; formerly city physician of Knoxville, Tenn.; aged 51; died, October 24.

Stephen Douglas Large, Hopkins, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; aged 62; died, October 30, of cerebral embolism.

Arthur Benjamin Harding, Castile, N. Y.; University of Buffalo (N. Y.) Department of Medicine, 1884; aged 64; died, October 20, of heart disease.

Lewis James Frink, Providence, R. I.; Dartmouth Medical School, Hanover, N. H., 1889; aged 70; died, October 31, following a long illness.

Cornelius Joseph Dacey ⊕ Brocton, Mass.; Tufts College Medical School, Boston, 1901; aged 44; died, October 3, at Boston, of tuberculosis.

Alfred Crane, Brownville, Neb.; Northwestern Medical College, St. Joseph, Mo., 1881; aged 67; died, August 24, at Richmond, Va.

John H. Calvert, Milton, Ky.; University of Louisville (Ky.) Medical Department, 1881; aged 62; died, October 28, of pneumonia.

W. S. Sanderson, San Saba, Texas; Atlanta (Ga.) Medical College, 1875; aged 72; died, October 28, following a long illness.

James Calvin Thompson ⊕ Pittsburgh; Bellevue Hospital Medical College, New York, 1882; aged 64; died, September 14.

Henry J. English, Grindstone, Pa.; Jefferson Medical College of Philadelphia, 1873; aged 74; died, October 25.

George D. Custer, Scio, Ohio; Columbus (Ohio) Medical College, 1884; aged 71; died in September of senility.

Thomas Leo Stanton, Boston; Medical School of Harvard University, Boston, 1894; aged 53; died, October 24.

George S. Catlin, Hartville, Wyo. (licensed, Wyoming, 1899); aged 79; died, September 9.

B. F. Jones, Muddy Fork, Ark. (years of practice); aged 87; died, October 27, of senility.

Now that the community is educated to seek advice early, the moment the lesion is observed on the lower lip, I am able to divide the cases observed and reported by me into the following classes:

1. The lesion on the mucocutaneous border of the lower lip is small, of short duration—a few days up to two weeks; it is of the type of a burn, a fever blister, a vesicle, keratosis or a wart. The patient smokes or chews; the teeth may be ragged and dirty. The majority of these lesions heal by removal of the causes—tobacco and ragged, dirty teeth and instructing the patient to keep the teeth clean and the lip lesion covered with petrolatum.
2. The lesion is of longer duration, but still distinctly benign—leukoplakia, or the chronic chapped lips of the smoker. Such lesions disappear when tobacco in every form is removed.
3. The lesion of the first group does not disappear under treatment, or, when seen, is of longer duration. In this group one cannot distinguish between the benign and the malignant, clinically.
4. The lesion is distinctly benign—a wart.
5. The lesion is distinctly cancer.

Groups 3, 4 and 5 should be subjected to immediate local excision under procain, and the operation on the glands of the neck performed, if the microscope pictures carcinoma in the primary lesion.

If, instead of operation, these patients are subjected to radium, roentgen rays, caustic paste, fulguration, cautery—all without microscopic study—the lesion in the first group will be permanently cured, but the treatment deserves no more credit than the treatment by the removal of the cause and cleanliness.

In Group 2, no treatment is of any value, unless the cause (tobacco) is removed, and if this is done any other treatment is unnecessary.

In Group 3, any other treatment that does not permit a microscopic study will lead to the false conclusion, in many of the cases, that the treatment has cured a local cancer; and if the local lesion is malignant, just as in Group 5, the removal by operation, or the destruction or healing by any other treatment, is but a minor part of the treatment. It is essential to ascertain whether the local lesion is cancer, and if it is, to remove completely the glands in the submaxillary and submental areas. Today there is every evidence that complete removal of the glands of the neck offers more than any other known treatment. There is apparently no objection to irradiate, either with roentgen rays or with radium, the lymphatic area before and after the thorough removal of the glands; but there seems no question that the removal of the glands is the essential feature. In those cases in which the microscope fails to show metastasis, postoperative irradiation is unnecessary.

I am willing to submit the accumulated evidence in the Surgical Pathological Laboratory of the Johns Hopkins Hospital to any investigating committee for comparison with roentgen-ray, radium or any other type of treatment. This second paper will soon be published. In view, however, of the growing tendency of members of the medical profession, not surgeons, to refer their patients with early lesions of the lower lip for roentgen-ray and radium treatment, it was my opinion that this warning, based on thirty years' experience with more than 500 cases, should be made, if possible, with the largest publicity.

At the present time more than 60 per cent. of the lesions that I have excised from the lower lip are microscopically benign, and of the remaining 40 per cent., in more than 75 per cent. the glands, when removed, show no evidence of metastasis. Joseph Colt Bloodgood, M.D., Baltimore.

A USEFUL TRIFOCAL LENS COMBINATION FOR ELDERLY PERSONS

To the Editor:—A number of ear and throat specialists have found advantage in using trifocal lenses—a distance lens, the requisite presbyopic segment, and another segment cemented at the upper part of the distance lens to give the proper correction when looking through the perforation of the head mirror. Every person whose accommodative power has considerably declined finds that his vision beyond the near point for which his reading glass gives good vision, and inside the distance of 20 feet, is measurably dimmed. This is especially true of persons past 60 years of age. In experimenting with my own eyes, I found that my vision of objects around the office and of persons across the dinner table was much improved by making my distance correction half or three quarters of a diopter stronger than the normal. I then found that street car signs a block away as well as the faces of acquaintances were dimmed. To correct this I had some concave cements (—.75 D.) placed on the upper part of the distance lenses. With a lens 38 mm. high, this gives a middle space about 8 mm. high, which is ample. When one wishes to see a distant street car sign or the face of some person clearly, a slight dropping of the chin gives clear vision through the upper full distance correction.

I have found this combination a great satisfaction, and as opticians and physicians tell me they never heard of it before, I wish to pass it along.

Edward J. Brown, M.D., Minneapolis.

"AN OVARIAN HORMONE"

To the Editor:—In The Journal, September 29, Dr. R. T. Frank of Denver criticized our preliminary report on "An Ovarian Hormone" (The Journal, September 8). That only one of his criticisms is justified will be seen when our experimental data and protocols are published. This criticism concerns our mistaken use of "hyperemia" for "hyperplasia" in a quotation from Dr. Frank's paper. This happened inadvertently in the revision of our manuscript for publication. We wish to acknowledge the error and sincerely apologize to Dr. Frank for our mistake. A copy of this letter is being sent to Dr. Frank.

Edgar Allen, Ph.D.,
Edward A. Doisy, Ph.D.,
St. Louis.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PARADICHLOROBENZENE AS INSECTICIDE

To the Editor:—Who has had the best chance to know the physiologic effect of Paradichlorobenzene, especially the local effect on the skin and the effect of its inhalation? It is now recommended by the government for peach borer. It is placed underground about trees to kill worms. Would it also destroy the scabies bug in the skin? What could come from such use, and how would you suggest that it be used?

L. J. Sharp, M.D., Commerce, Ga.

Answer.—Paradichlorobenzene was found by Galewsky (*Ztschr. textil. Ind.* 1915, p. 506) to be more efficient as a moth exterminator than any of the other commonly used insecticides. Duckett has reported that *p*-dichlorobenzene is an excellent insecticide when used as a fumigant (Bull. 167, U. S. Dept. Agric., 1915). Sollmann (*J. Pharmacol. & Exper. Therap.* **12**:133 [Oct.] 1918) found it toxic to earthworms, its effectiveness comparing favorably with that of oil of chenopodium. No toxic effects were noted in dogs, even after large doses internally (*J. Pharmacol. & Exper. Therap.* **14**:243 [Nov.] 1920). Under the proprietary name "Globol," *p*-dichlorobenzene has been considerably used in Europe against head lice, but it has been reported sometimes to cause blister.

We have no information about its use in scabies.

MIGRAINE AND EPILEPSY

To the Editor:—Will you please answer the following questions? 1. Are there any statistics showing the numerical incidence of migraine in any definite area, such as a state or a country? 2. Are there any statistics showing (*a*) the incidence of epilepsy among the descendants of all the migrainous persons in any country, state or locality, and (*b*) the numerical relation of epileptics and nonepileptics among such descendants? The point, which I see I have not made quite clear, is to determine the percentage of probability that epilepsy will develop in any descendant of an individual who has migraine but not epilepsy. 3. Recent writers on heredity assert, without qualification, that migraine and epilepsy are both simply different manifestations of one and the same mendelian character, which obeys the mendelian laws of heredity, such as the characters of tallness or shortness in peas. In the absence of any demonstrable pathology in the case of either disease it would seem that the identity of these two diseases, so different in their symptomatology and their effects on the welfare of the patient, can only be based on a very extensive study of statistics. Has the statistical study of these two symptom groups been sufficiently thorough and extensive to warrant the positive assertion that they are nothing more nor less than two modes of manifestation of one and the same pathologic—or biologic—entity? Please omit name. ———, M.D., Colorado.

ANSWER.—1. No.

2. No.

3. No, but that there is apparently some relationship between epilepsy and migraine, has been noted by many writers, on the basis of the close clinical relationship between some forms of migraine and epilepsy, and also on statistical analysis, though the latter has not been checked against a census of migraine in a normal population. That the migraine attack may alternate with epilepsy or precede it or follow it in an orderly sequence is a common observation and best illustrated by Gowers, in his "Borderland of Epilepsy." The most recent statistical analysis is by Buchanan (*Minnesota Med.* **3**:536 [Nov.] 1920; *M. Rec.* **98**:807 [Nov. 13] 1920; *New York M. J.* **113**:45 [Jan. 8] 1921). He has studied the incidence of epilepsy and migraine in migrainous and epileptic groups of patients at the Mayo clinic, and finds a definite mendelian ratio in which migraine and epilepsy are inherited like unit characters, dominant and recessive. He believes that if two "pure strains" of migraine are crossed, the children will all have migraine; if a migrainous and an epileptic are crossed, the children will all have either or both, and that from the migrainous, epilepsy can be inherited.

PEPPERS IN THE DIET

To the Editor:—As a layman who has done some reading on the subject of diets, I am, of course, much interested in anything of this kind. In looking over the different diets, I do not see the mention of bell peppers or green peppers. I have rather come to regard these as of considerable value in the diet, especially for furnishing roughage. This roughage, furthermore, seems to retain more moisture, or retain moisture better, than the roughage furnished by many other fruits and vegetables, and I have been rather prone to urge the use of peppers in my own family; in fact, I consume them liberally myself. I am wondering, therefore, what objection, if any, there may be to their more general use in the diet? E. W. B———, Florida.

ANSWER.—Peppers probably have the same value in roughage as many other of the coarser vegetables. However, they would seem to have one disadvantage: They are foods which many people do not enjoy. Some cannot digest peppers, and in such persons they have a tendency to produce gastric distress.

HELEN KELLER

To the Editor:—I am not sure whether you have the information or not, but I do not know of another place to get the facts. Please inform me whether the statement is true that Helen Keller was made blind and deaf by quinin. I was under the impression that her misfortune was due to cerebrospinal meningitis.

A. D. STRICKLER, M.D., Lebanon, Pa.

ANSWER.—Helen Keller says in her book "The Story of My Life" that the physician's diagnosis of the illness that led to her condition was "acute congestion of the stomach and brain." According to Appleton's encyclopedia, "An attack of scarlet fever when she was 19 months old left her blind and deaf." Hitz says in the *American Journal of Anthropology*, "an acute attack of gastritis followed by a malignant fever." It seems, therefore, that Helen Keller's illness was due to some infectious disease, which, however, was not definitely determined. Forty years ago, bacteriology was just developing into a science. It seems doubtful that an accurate diagnosis can be established on the present available evidence. The diagnosis "congestion of the stomach and brain" means nothing. The more likely diagnosis would be scarlet fever or encephalitis.

WHOOPING COUGH VACCINE

To the Editor:—I am very anxious to have the following queries answered: What is the present status of the treatment of whooping cough with vaccine? What is the present view as to the prophylactic treatment, and the permanence of the immunity created, if any? Please omit my name and address. H. A., Missouri.

ANSWER.—In a series of articles on biologic therapy prepared under the auspices of the Council on Pharmacy and Chemistry, W. C. Davison (THE JOURNAL, Jan. 22, 1921, p. 242) concluded a review of the use of pertussis bacillus vaccine thus: "In summing up the prolific and somewhat contradictory literature on this subject, it may be concluded that injections of Bordet-Gengou bacillus vaccines may have a slight though unreliable prophylactic effect, and that therapeutic inoculations are of practically no value. Further experiments are necessary to raise this procedure from the limbo of nonspecific therapy."

The Council on Pharmacy and Chemistry has accepted pertussis bacillus vaccine for New and Nonofficial Remedies, but states in regard to the usefulness of the product: "The evidence indicating that it is of value for either prevention or treatment is very questionable, and the reports are conflicting."

SALIVATION IN PARALYSIS AGITANS

To the Editor:—I have a patient with paralysis agitans, and one of the most troublesome symptoms is excessive salivation. Could you suggest anything that will check this condition, not including belladonna?

F. VELA GONZALEZ, M.D., Monterrey, N. L., Mexico.

ANSWER.—The salivation of paralysis agitans is apparently due to overaction of the autonomic nerve supply, and the only group of drugs that are known to depress the function of these stimulant fibers are the alkaloids of the belladonna group, which include scopolamin and duboisin as well as atropin. Individual idiosyncrasies can sometimes be met by employing one of the alternatives. The symptom is often extremely annoying and may be impossible to control.

MORTALITY STATISTICS OF PHYSICIANS

To the Editor:—Where can I find something about the average age at death of physicians, the average length of time they have practiced, and the principal cause of death?

N. M. WHITEHILL, M.D., Boone, Iowa.

ANSWER.—In the first issue of THE JOURNAL each year appears an editorial analysis of the deaths of physicians during the previous year. From these analyses, it appears that the average age at death, during the last fifteen years, is 60. The greatest number of deaths occurred between 61 and 70. The average age at graduation is 26 years, and the average years of practice is thirty-three. The principal causes of death are: (1) diseases of the heart and circulatory system, (2) senility and (3) cerebral hemorrhage. The average annual mortality rate for the period from 1902 to 1922 was 15.52 per thousand.

PREADOLESCENT HYPOPITUITARISM

To the Editor:—In view of the fact that oral administration of pituitary extract is valueless, what is the present treatment of preadolescent hypopituitarism, accompanied by adiposity, etc.?

J. L., M.D., Mich.

ANSWER.—Hypophysial adiposity is sometimes the result of congenital syphilis; in such cases, antisyphilitic treatment will give good results, if given early. Other cases are due to hydrocephalus, the surgical treatment of which has so far not been satisfactory.

The Fecundity of Mediocrity.—Society may accomplish much by checking the multiplication of the feebleminded, the criminals and the insane; but how to keep from being swallowed up in the fecundity of mediocrity is [illegible] difficult problem.—Holmes: Studies in E[illegible]ics, New York, 1923.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Delaware: Wilmington, December 11-13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

Kentucky: Louisville, December 11. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

Louisiana: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: Baltimore, December 11-14. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

North Dakota: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Ohio: Columbus, December 5-7. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

Oregon: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

Virginia: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

CONNECTICUT'S BOGUS DIPLOMA INVESTIGATION

The Connecticut investigation in regard to bogus diplomas and loose methods of issuing licenses to practice medicine has had the result of bringing certain individuals into the limelight. The reports regarding one of these is as follows:

Donald W. Stewart

Dr. Donald W. Stewart of Broad Brook, Conn., has been brought prominently into the investigation. Stewart is reported to have failed at an examination held by the West Virginia Board of Medical Examiners in January, 1921, but passed the examination of the Connecticut State Board of Eclectic Medical Examiners in July, 1921. When he applied for examination in West Virginia, according to the report, he claimed to be a graduate of the Southern College of Medicine and Surgery of Atlanta, Ga., in 1914. A complete list of the matriculants and graduates of the school named, at the headquarters of the American Medical Association, does not include Stewart's name. A letter received under date of March 8, 1921, from Stewart states that his diploma from the Southern College of Medicine and Surgery was issued "in 1914, before the college ceased existence." After the college ceased to exist in 1914, however, it is known that diplomas were issued to several individuals whose names do not appear in the list of those who were regularly enrolled in and graduated from this school. If a diploma was issued to Donald W. Stewart, therefore, it was evidently issued in the same manner. Stewart has thus far failed to furnish a statement showing in what college and in what years he obtained his medical instruction.

According to present reports, when in 1921 Stewart applied for examination before the Connecticut Board of Eclectic Medical Examiners, he is reported to have sworn to the statement that he was a graduate of the "Atlanta Eclectic Medical College" in 1914. There is no record of any medical school having ever existed, reputable or otherwise, bearing that particular name. Documentary evidence in the files of the American Medical Association show that Stewart enrolled in the *freshman* class of another medical school less than a year prior to the date when he claims to have graduated from the Atlanta institution. A letter dated June 4, 1921, from the dean of the Lincoln Memorial University, Knoxville, Tenn., states that Stewart was matriculated in that institution in the fall of 1913, but that he "remained only a few days"; that he "completed no work," and that he did not return at any later time. Furthermore, a letter from the dean of the Hahnemann Medical College and Hospital of Philadelphia states that Stewart was enrolled in the *premedical* class of that institution in the fall of 1914, but that he did not finish the year and, therefore, received no credits. In the light of these statements, it is quite evident that Stewart did not complete the four years of study in any bona fide medical school which would entitle him legally to receive a degree in 1914. In that year, meanwhile, he was evidently only 21 years of age, since the records show that he was born (at Beaver, Pa.) in 1893.

It is reported that at the time Stewart applied for his Connecticut license, in his sworn statement, he claimed to have been in practice at Old Point Comfort, Va., for five years. Evidently, therefore, he did not go to Connecticut until in 1921, when he took the examination given by the Connecticut Board of Eclectic Examiners. Nevertheless, Stewart appears to have been welcomed with open arms by the Connecticut Eclectic Medical Society, since the reports now refer to him as a "former vice president" of that organization. In September, 1921, Stewart is said to have secured an internship in the New Britain (Conn.) General Hospital, but that shortly thereafter, owing to certain "alleged discrepancies in his statements of qualification," he was dropped from the staff, but in order that he might have "reasonable notice," was "allowed to withdraw from the hospital on December 1st after a due try-out."

Stewart was named in the validating bill[1] introduced in the 1923 session of the Connecticut legislature. The state health department is said to have canceled his previous license because the Atlanta Eclectic Medical College was not on the list of institutions approved by the Eclectic Board. The license appears to have been restored since, according to the report, the Eclectic Board promptly placed the school on its approved list—in spite of the fact that there is no evidence or record to show that any medical school by the name of the Atlanta Eclectic Medical College, bona fide or otherwise, ever existed at Atlanta. Through the restoring of Stewart's license it became unnecessary to include his name in the validating bill, so it was stricken off the day before the bill was called up for final action in the house of representatives.

The foregoing shows how easily one unqualified person (there were evidently many others) was enabled to secure legal authority to treat the sick in Connecticut. Stewart may have his license revoked, but how about the safeguards to prevent future scandals in licensure in that state?

NEEDED IMPROVEMENTS IN GRADUATE MEDICAL EDUCATION

The following general statement will make more clear the position of the Council on Medical Education and Hospitals in relation to graduate medical instruction. The Council's chief desire is to cooperate with the various postgraduate teaching institutions in bringing about certain improvements, in accordance with the principles concerning graduate medical education which were adopted by the House of Delegates of the American Medical Association last June.

The Council is not attempting to prevent any physician from getting any course he needs, nor is it trying to assume authority over any individual or graduate teaching institution, or to prevent them from offering to physicians any courses they see fit. If an institution desires to have the Council's endorsement of its work or of any particular course offered, however, it should not be unwilling to comply with the principles which have been laid down and which are believed to be fair and just.

The principles provide more abundant facilities for the further training of general practitioners; the fact being recognized that any course of instruction which will improve the physician's knowledge or skill will be of service, both to him and to his patients. At the same time, however, it is believed that he will secure much better courses of instruction if those courses are arranged in a graded series whereby he can progress from one course to another and know that he is continually advancing in his work instead of being forced, as at present, to make a selection from a maze of unstandardized short courses, which may or may not provide him with the instruction he most needs.

In regard to courses leading to the specialties, the Council is merely withholding its approval from the present-day tendency whereby many physicians are being permitted to rush into some specialty regardless as to whether or not they have developed the knowledge and skill which would justify such action. Here again, there is no attempt to prevent any physician from taking any course he desires, nor to hinder an individual or institution from offering instruction in any course. The Council merely asks that such courses be given in accordance with certain principles if they are to have the Council's endorsement.

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[1] List published last week in Further Diploma Mill Investigations in Connecticut, J. A. M. A. 81: 1714 (Nov. 17) 1923.

The principles adopted in regard to courses for the training of specialists are being applied chiefly to certain groups of courses which, to a deplorable extent, are being used as short cuts to the practice of specialties by many who have not attained the essential qualifications which should be required. Neither the American Medical Association nor any other body of self-respecting people would endorse such a procedure; nor should they appear to do so by failing to do what they can to prevent it. The Council is urging that such steps be taken, and is withholding its approval from certain courses until adequate safeguards against their abuse have been established by the institutions offering such courses. These safeguards can be established without much difficulty by the graduate medical schools, (*a*) by having their courses properly graded; (*b*) by ascertaining the educational and professional qualifications of the physician-students, and (*c*) by admitting to any course only those students who are found to possess the essential prerequisite work or training. Such grading is, indeed, more essential for graduate students than for undergraduates, since the qualifications of the former now vary to a greater extent.

The courses which are most commonly utilized as short cuts are as follows:

Operative Surgery* (except emergency surgery*).
Surgical* Pathology.
Surgical Laboratory Technic.
Dog and Cadaver Surgery.*

* Or like courses in orthopedic surgery, urology, gynecology, ophthalmology and otolaryngology.

As now given, most of these courses fail to provide even the minimum requisite knowledge of diagnostic, laboratory or operative technic, much less the essential review courses in the preclinical sciences; the needed experience in the examination of patients; the diagnosis of the diseases covered by the specialty, and particularly the recognition of conditions which require operative treatment. Furthermore, the courses offered are independent of and make no provision for residencies or advanced internships where the graduate student can subsequently develop skill in applying his special knowledge in the care and treatment of human beings while still under the supervision of a physician who is recognized as an expert in the particular specialty before he begins his operative procedures in his own independent practice. These principles apply particularly to the surgical specialties and to the application of operative procedures, since a surgical operation, on the eye, for example, may needlessly handicap a patient for the balance of his lifetime. The portion of the principles regarding graduate medical schools which bear on this particular matter are as follows (paragraph 4):

> Any institution offering work in any specialty, therefore, should provide (*a*) review courses in anatomy, pathology, and the other basic preclinical sciences which apply to the respective specialties; (*b*) clinics in which students can have the opportunity personally to examine patients in hospital wards and outpatient departments and in which various therapeutic and operative procedures can be demonstrated; (*c*) courses of operative and laboratory technic, and (*d*)—to be assigned only when the student's previous training will warrant—assistantships in which, under the supervision of a physician already having recognized skill in the particular specialty, he can gradually assume responsibility in the diagnosis and therapeutic or operative treatment of the sick.

In this paragraph also it is provided that the courses of instruction should be "so graded that the student, if he desires, can obtain progressive work in a continuous course of two or three years," or if he prefers he can secure the same work in a series of shorter courses "so graded that, in effect, they would be segments of and, in total, the time and educational equivalent of the longer courses."

Where courses leading to specialization in any of the subjects enumerated are properly graded, and where the graduate school carefully investigates the previous training of the individual physician before assigning him to courses of instruction, it will not matter so much whether the student is merely preparing himself for better work in his general practice, or whether he is intending later to practice as a specialist.

The investigations during the last few years of the various postgraduate medical schools show the deplorable lack of courses to which any stsndardizing body could give an unqualified approval merely because they are not graded and are not being administered in accordance with any definite principles or standards. It is gratifying to know that already the majority of the postgraduate teaching institutions have abandoned, or expressed their willingness to abandon, the giving of higher degrees or diploma-like certificates to students taking short courses. It is the Council's desire to cooperate most heartily with any institution in an effort to develop their graduate teaching so as to provide in the United States more well organized and well administered opportunities for graduate instruction. This is clearly the greatest need in medical education today.

Social Medicine and Medical Economics

NATIONAL RESEARCH COUNCIL COMMITTEE FOR RESEARCH ON SEX PROBLEMS

A Statement of Purpose and Policy

EARL F. ZINN
Executive Secretary of the Committee
New York

This statement concerning the Committee for Research on Sex Problems, Division of Medical Sciences of the National Research Council, is presented primarily to record the fact of a serious attempt to further systematic research on sex problems. The report, however, may be of interest not only with reference to specific information relating to research on sex problems but also as an example of a method by means of which a comprehensive research project may be attacked by the cooperation of various institutions and individuals through the National Research Council.

This committee was organized in November, 1921, for the purpose of promoting, coordinating and systematizing research on sex problems to the end that conclusions now held might be evaluated and a better understanding of human sexuality obtained. The committee consists of:

Dr. W. B. Cannon, professor of physiology in the Medical School of Harvard University.

Dr. E. G. Conklin,* professor of biology in Princeton University.

Dr. Katharine Bement Davis, general secretary, Bureau of Social Hygiene, New York.

Dr. Thomas W. Salmon, professor of psychiatry in the Columbia University College of Physicians and Surgeons, formerly medical director for the National Committee for Mental Hygiene.

Dr. R. M. Yerkes, chairman of the division of research information of the National Research Council, formerly professor of psychology in the University of Minnesota (chairman).

Mr. Earl F. Zinn, formerly in charge of research promotion for the American Social Hygiene Association, was appointed executive secretary of the committee.

Though this project was motivated originally by the need for a better understanding of sex in its human aspect, this was not interpreted by the National Research Council or the committee to mean that investigations were to be limited to those of a technological nature determined by the needs of medicine, education and hygiene. The pressing need for useful knowledge was realized; and while it was agreed that these problems should be given all possible consideration, it was the opinion of those responsible for the project that its objective should be more inclusive; that in addition to contributing to the alleviation of current individual and social sex problems, it should also aim at a better understanding of the underlying factors—biologic, physiologic and psychologic—which are basic to any real understanding of human sexuality. This conception markedly extended the scope of the project, and brought the realization that its systematic development would be a matter of years.

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* Professor Conklin resigned from the committee, July 1. Prof. F. R. Lillie, professor of embryology in the Uni [illegible] was appointed in his place.

After a brief study of the problem, the purposes and policy were tentatively defined as follows:

> In formulating the purpose and policy of the Committee for Research on Sex Problems, it is not implied that no work of value on sex problems is being done, or that biological research is unsystematic and uncoordinated. Much valuable work on sex has been done or is in progress, and there is constant effort to systematize and coordinate biological research in terms of each science, as rapidly as development of method and resources permit. It is in relation to sex problems per se that no concerted effort to stimulate, systematize and coordinate research has been made. From this angle, research on sex problems is sporadic, and, as a result, our knowledge is chaotic. Much that is of value will undoubtedly be learned from research as conducted at present, but, from the standpoint of urgent sex problems, it will be incidental. More rapid progress toward an understanding of sex in its many phases will result, if, in addition to the work now being done, a systematic attack from the angles of all related sciences, with knowledge of sex as the central objective, is made. This is the main purpose of the committee. Stated concisely, it is: *To conduct, stimulate, foster, systematize and coordinate research on sex problems, to the end that the conclusions now held may be evaluated and our scientific knowledge in this field increased as rapidly as possible.*
>
> *It is the policy of this committee:*
>
> 1. To interest scientific workers in this project to the end that their cooperation and aid in the formulation of problems and technic for their study may be secured.
> 2. To utilize existing agencies in the study of such problems.
> 3. To be responsible for the wise expenditure of funds secured for this work.
> 4. To conduct types of research not requiring laboratory facilities. (Utilizing its secretary and clerical staff here.)
> 5. To encourage younger workers of promise to shape their training for work in this field.

A preliminary survey of the research situation elicited an enthusiastic response from scientific workers, and revealed a number of investigations of obvious fundamental importance in progress or proposed. Some of these, it was found, could be disproportionately extended with financial aid. Others could be undertaken whenever funds were available. An appropriation was made by the Bureau of Social Hygiene, whereupon the committee voted grants to the following institutions:

University of Minnesota, work under the direction of Dr. K. S. Lashley. Problem: Investigation of the sensorimotor and glandular components of sexual behavior in the rat.

Harvard University, work under the direction of Dr. Roger I. Lee. Problem: Inquiry into the norm of sex life of university students.

University of California, work under the direction of Dr. Herbert M. Evans. Problem: A study of nutritional and glandular factors in relation to the estrous cycle in the rat.

Cornell Medical School, Cornell University, work under the direction of Dr. C. R. Stockard. Problem: A study of glandular factors in relation to the estrous cycle in the guinea-pig.

Johns Hopkins University, work under the direction of Dr. D. R. Hooker. Problem: A study of the effects of roentgen irradiation on reproduction.

University of Chicago, work under the direction of Dr. F. R. Lillie. Problem: A Study of the sex hormones and the effects of castration and gonad transplantation, with special reference to birds and mammals.

University of Texas, work under the direction of Dr. T. S. Painter. Problem: Mammalian and human spermatogenesis.

State University of Iowa, work under the direction of Dr. B. T. Baldwin. Problem: To determine the relation of pubescence in boys to the appearance of sperm cells.

Phipps Clinic, Johns Hopkins Hospital, work under the direction of Dr. Adolf Meyer. Problem: Collation of replies to a sex questionnaire to medical students and other persons; and organization of detailed observations of the sex life of selected groups over a period of time.

Stanford University, work under the direction of Dr. Calvin P. Stone. Problem: A study of the sexual behavior of white rats as correlated with known anatomic and physiologic changes induced by chronic and acute inanition.

While it was realized that the adoption of an opportunistic policy such as that which determined the selection of the investigations mentioned above would tend to stimulate research on sex problems, it was apparent that it could not contribute directly to the task of coordinating and systematizing research in relation to the major objective, namely, a better understanding of human sexuality. It was evident that major lines of investigation must be marked out if the project were not to flounder hopelessly in this complex field. The following subdivisions were selected, with recognition, however, that they would have to be further subdivided as the study progressed:

1. Biology of sex (systematic and genetic aspects).
2. Physiology of sex and reproduction.
3. Psychobiology of sex (infrahuman).
4. Psychobiology of sex (human, including individual, anthropologic, ethnologic, sociopsychologic aspects).

To facilitate coordination, it was decided to bring related investigations together in a single institution or laboratory wherever possible. During the past year this plan has been followed with the biologic investigations, this work centering in the University of Chicago under the direction of Dr. F. R. Lillie. It has been partially followed in the physiologic investigations, the major support going to Dr. Herbert M. Evans in the University of California and to Dr. C. R. Stockard in the Cornell University Medical College. A suitable center in which to concentrate the infrahuman psychobiologic investigations does not exist in this country at present. Hence it has been necessary to continue to support isolated investigations. This is also the case with the human studies.

The committee is continuing its study of the general problem with a view toward defining with increasing clarity the field in which research should be fostered and promoted, and is endeavoring to coordinate this work by bringing together related investigations in suitable centers as rapidly as conditions warrant. This does not mean, however, that individuals working outside such centers may not qualify for support from committee funds. Qualified investigators are invited to submit research plans and estimates of costs, which will be considered on the basis of merit in relation to the program as outlined thus far. For the support of this program to June 30, 1925, the Bureau of Social Hygiene recently appropriated the sum of $100,000.

A more detailed statement of the development and progress of this work is being prepared, and will be issued as a separate bulletin by the National Research Council. Research projects submitted for the consideration of the committee, and requests for more detailed information regarding its work, should be addressed to the Committee for Research on Sex Problems, Earl F. Zinn, Executive Secretary, 370 Seventh Avenue, New York City.

THE LAW OF LIBEL: A LESSON FOR PHYSICIANS

A lesson of interest to physicians is embodied in the case of *Middler* v. *Hamilton*, recently decided in the Transvaal Division of the Supreme Court, as reported in the *South African Medical Record* (**21**:409 [Sept. 8] 1923). The defendant, the medical officer of the Randfontein Hospital, complained to the finance committee of the hospital that the matron was incompetent. Thereupon she sued him for libel. The defendant pleaded justification and that the communication was privileged. Judgment in his favor in the lower court was reversed on appeal, and damages and costs were awarded against him. The court apparently found the plea of justification not supported by the evidence. The defendant's complaint to the finance committee was held not to be privileged, because the finance committee had no power to deal with such complaints and the defendant took no steps to bring the matter before the general committee, which did have such power. Apparently the fact that the defendant took no steps to make his complaint effective by bringing it to the attention of the committee that might have acted on it afforded grounds for the inference that the complaint to the finance committee was not made with the best interests of the hospital at heart, but from other motives. A communication of this kind, to be privileged, must be not only privileged in substance but must be addressed to the proper party.

Book Notices

Non-Surgical Drainage of the Gall Tract. A Treatise Concerned With the Diagnosis and Treatment of Certain Diseases of the Biliary and Allied Systems, in Their Relation to Gastro-Enterology and General Clinical Medicine. By B. B. Vincent Lyon, A.B., M.D., Chief of Clinic, Gastro-Intestinal Department of the Jefferson Hospital. Cloth. Price, $10. Pp. 640, with 185 illustrations. Philadelphia: Lea & Febiger, 1923.

Dr. Lyon here presents a description of his method of nonsurgical drainage. In collaboration with other clinicians, he includes a consideration of clinical methods of diagnosis, such as history taking, laboratory methods of examination and physical examination. He gives an elaborate description of his technic, and concludes with a citation of numerous case histories in which his procedure has been used. The book is well written, and were it not for numerous statements that cannot be passed by the skeptic without challenge, it would be almost convincing. Dr. Lyon believes that his procedure is based on scientific principles that are soundly established. This is questionable. Dr. Meltzer's theory of the law of contrary innervation has never been positively established. Yet the author accepts it as a proved fact. Later on in his book he states as an accepted fact that the gallbladder empties itself by contraction. Contractile power of the gallbladder has never been shown. On the contrary, the gallbladder empties itself slowly. The statement that removal of the gallbladder tends to a dilatation of the bile tracts, a forcing open of the sphincter of Oddi as a result of muscular exhaustion and changing a normal intermittent to a continuous discharge of bile, leading to possible grave disturbances in certain cases, has neither clinical nor experimental foundation. Nor does a review of the literature, and the opinion of surgeons in large hospitals, warrant the extravagant statement that in the direct evidence it furnishes us, his procedure far surpasses any diagnostic method yet available. It is true that a flow of bile may follow the administration of magnesium sulphate or olive oil. The treatment of gallbladder disease by olive oil or Epsom salt is an old method. The statement, however, that Epsom salt is changed in the stomach by hydrochloric acid has no proof. These statements are quite in line with such unscientific statements in a modern textbook as "lazy liver" and "biliousness." It would seem as if the author were contradicting himself by the use of such terms. If the liver were really at fault, then certainly gallbladder drainage would be of no avail. What is really wanted is liver drainage. This does happen when the gastro-intestinal tract is stimulated to activity, and is not the result of the work of contrary innervation in the gallbladder. In his lengthy controversy with the opponent of his procedure, he will not convince the reader of the correctness of his contentions. The readily resorted to criticism of inexperience, inaccuracy of technic or unphysiologic surroundings, such as Franzen's work with a biliary fistula and other similar criticism, does not answer. As well say that Pawlow's work was unconvincing because it was done under unphysiologic surroundings. There are numerous statements that cannot pass without challenge that will only be mentioned. Physiologic block is considered a fact, even though no evidence of such a condition has been adduced. The author assumes a difference between catarrh and infection of the gallbladder. A description of such a difference would be welcome. In another place the author speaks of feebly contractive power of an infected gallbladder as though the existence of a strongly contracting power subject to stimulation had already been established. Likewise, what is the difference between cholecystitis, etc., with and without infection? The author speaks repeatedly of draining empyema of the gallbladder. It is remarkable that a closed sac of pus should yield first to relaxation of Oddi's sphincter, and finally can be cured by biweekly or even daily aspiration, even with the tube continuously in place. More interesting than this is the statement, "If the microscopic picture of excessive necrosis suggests possible gangrene, the treatment should be stopped and resumed in a day or two if conditions permit." Gangrene of the gallbladder is associated with very acute symptoms and threatening results, unless surgical intervention occurs. Yet the author claims restoration of a gangrenous gallbladder to its normal condition by nonsurgical biliary drainage. This would, indeed, be a wonderful cure, were it not fraught with dire consequences to the patient. The diseases amenable to treatment by this method range from simple gallbladder atony (?) through all the grades of gallbladder and liver diseases to pernicious anemia, melancholia and biliary migraine (?). Chronic biliousness is also an indication for treatment, although what it is would be welcome information to the physician. Even the pancreas can be drained by nonsurgical measures. In addition to biliary drainage, Dr. Lyon places his patients on restricted diets, and administers various and numerous nonaccepted, proprietary preparations, as senna agar, gastron, caroid, antacids, Gude's peptomangan, bile salts for torpid livers, and veracolate pills, as indications for their use arise. He has had no favorable results with intestinal antiseptics. Treatment is further supplemented by the high frequency current to the lower thoracic and lumbar vertebra, sparking in atonic, [illegible] close contact in spastic constipation. It is not for the [illegible] to condemn the method and show it to be without [illegible]. The book is a good exposition of diseases of [illegible] gallbladder. If the method is generally accepted as a [illegible] treatment on its merits, it will be to the credit of Dr. Lyon. Extravagant and unscientific statements, however, [illegible] no room in [illegible]

Medicolegal

Insured Leaving House to Go for Medical Treatment

(Mutual Ben. Health & Acc. Ass'n v. McDonald (Colo.), 215 Pac. R. 135)

The Supreme Court of Colorado, in affirming a judgment in favor of the plaintiff on a policy of indemnity issued by the defendant association, says that the policy provided that any accidental injury resulting in septicemia should be classed and paid for as sickness as set forth in paragraphs which made a distinction between total disability resulting from sickness and "confining the insured continuously within doors," and that which did not confine him continuously within doors. The plaintiff was attacked and bitten by a ferocious dog, thereby sustaining bodily injuries which resulted in septicemia, as a result of which he had been totally disabled from the day that he was bitten, and prevented from attending to any business. He did not leave his home or go out of his house for about eight weeks, but during that period was treated at his home by a physician. After that, approximately once each week, he left his home and rode in the street cars to Denver, a distance of about 6 miles, for the sole purpose of receiving medical treatment for his injury. The defendant contended that from the time the plaintiff first left the house and went to Denver he was no longer entitled to full indemnity. But the court is of the opinion that the interruption or break in the confinement of the insured within doors was not such a departure from the contract, or in such violation of its provisions, as to defeat a recovery of full indemnity.

If an insured may not, without violating his policy, leave his house for any purpose, but must continuously or strictly stay within doors every moment of the period for which full indemnity is asked, then he could not leave it in case of fire or destruction, or even step out on a porch or veranda for fresh air, or take "outdoor" treatment for tuberculosis, acting under the advice of his physician. These are extreme illustrations, but they show the necessity of applying reasonable, not harsh, unnatural rules of construction to such words. Again, this policy contained the additional provision that it did not cover disability while the insured was not continuously under the professional care and regular attendance, at least once a week, of a licensed physician or surgeon. Limiting clauses should be construed in connection with all other provisions of the contract, including in this case the one just mentioned, which makes it imperative for the insured to have professional care and attendance. He is supposed to follow, and would be justified in obeying, his physician's advice and directions. The "care and attendance" are not required to be given in the house. It might be, as when some unusual surgical operation, or a roentgenographic examination, is imperative, that only at the physician's office or at a hospital could the patient receive their benefits; but, if the construction of the defendant was correct, the insured, even though so directed by his physician, if he left his house to ride in a street car to go to Denver to undergo the operation or to submit to the examination, would forfeit his right to full indemnity from the moment he left his house to make the journey, even though during all the weeks within the time limit of the policy he was totally unable to pursue his usual vocation. No such construction should be put on a clause of limitation as would make it repugnant to, or inconsistent with, another provision of the same contract with which the insured must comply in order to be entitled to any indemnity at all.

Fees for Waiting Experts Not Required to Testify

(Jones v. Antrim Circuit Judge (Mich.), 193 N. W. R. 873)

The Supreme Court of Michigan says that in this proceeding the plaintiff sought an order requiring the defendant, circuit judge, to retax the costs awarded against her in an unsuccessful will contest, in which the trial judge had, among other things, fixed the sum to be taxed for three expert medical witnesses at $25 a day each. The will contest involved the mental competence of the testatrix, but late in the trial that issue was abandoned. Usually expert medical witnesses are asked hypothetic questions, and there is no need of their sitting in court to listen to the evidence. These experts, however, were from a distance, and the exigencies of the trial might have required calling them at almost any time, and the contestant of the will in raising the issue of want of mental capacity on the part of the testatrix could not complain on being taxed with the cost so incurred to meet that issue. But, it was said, the experts were not sworn as witnesses. The contestant's withdrawal of the issue of mental incompetence of the testatrix rendered the evidence of the experts unnecessary.

The order of the court fixing the sum to be paid the experts was made about nine months after the trial and, it was contended, without notice or showing of the character of their proposed testimony, and the attention of the supreme court was directed to Section 12559, Compiled Laws of Michigan of 1915, which provides, in substance, that expert witnesses shall receive extra compensation only when they testify to matters of opinion and not to established facts or deductions of science. The record before the supreme court did not disclose the character of the testimony the experts would have given had the contestant stood fast to the issue calling for their attendance, but this court may assume that the trial judge had a pretty fair inkling that they were present to testify to matters of opinion. It appeared from the return of the circuit judge that the order fixing the compensation to be paid the expert witnesses was made by a judge of another circuit presiding at the trial, and was actually made on application in open court, during the trial of the cause, and was opposed by the contestant, but later the order was signed by the judge presiding and filed in the case. The order so made stood unappealed and was authorized by Act 404, Public Acts of 1919, which provides that:

> No expert witness shall be paid, or receive as compensation in any given case for his services as such, a sum in excess of the ordinary witness fees provided by law, unless the court before whom such witness is to appear, or has appeared, awards a larger sum, which sum may be taxed as a part of the taxable costs in the case.

Certainly it would not be contended that a party desiring to call an expert witness and to have the court "before whom such witness is to appear" fix his compensation, must give notice to his adversary so he can be heard and also make a showing of the character of the testimony such expert is to give. Nor does the statute contemplate notice and opportunity to be heard when the compensation is fixed after the expert witness has appeared. The same right prevails to tax, as a part of the costs, compensation permitted by the court to be paid to expert witnesses in good faith made to attend, and deemed material and necessary on an issue presented, though not sworn as witnesses by reason of the abandonment of the issue summoning them, as prevails in the case of other witnesses in good faith subpenaed and deemed material and necessary, and by turn of the case not sworn.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.
American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.
American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.
District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.
Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.
Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.
Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.
Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

32: 125-276 (Sept.) 1923

Hemosiderin Content of Choroid Plexus. M. D. Flather, Swarthmore, Pa.—p. 125.
*Studies on Lymphocytes. H. E. Jordan and C. C. Speidel, Charlottesville, Va.—p. 155.
Blood Stream in Labyrinth of Ear of Dog and of Man. G. E. Shambaugh, Chicago.—p. 189.
*Cause of Twinning and Abnormal Development in Birds. O. Riddle, Cold Spring Harbor, N. Y.—p. 199.
Effects of Hypotonic Solutions on Cell Morphology of Choroid Plexuses and Central Nervous System. L. H. Weed, Baltimore.—p. 253.

Nature of Lymphocytes.—The experimental results reported by Jordan and Speidel confirm the conclusion already reached from a study of the normal spleen of the frog, namely that the lymphocytes are the precursors of erythrocytes, granulocytes and thrombocytes.

Cause of Twinning and Abnormalities.—The results of Riddle's studies support and extend the conception that both abnormalties and twins owe their origin to alterations of the developmental rate, or, perhaps, the metabolic rate, at various and unequally susceptible developmental stages. But whether a stage is "critical" or "indifferent" is, in part at least, a question of whether the stage is subjected to a retarding or to an accelerating agent. And the stage of development at which twins or multiple embryos actually arise is variable and includes stages extending from the unsegmented egg to gastrulation.

American Journal of Diseases of Children, Chicago

26: 291-390 (Oct.) 1923

Study of Acute Secondary Anemias in Infancy. W. P. Lucas and H. R. Hoobler, San Francisco.—p. 291.
*Inorganic Constituents of Human Milk with Particular Reference to Racial Variations. C. W. Burhans and D. N. Smith, Cleveland.—p. 303.
*Etiology and Treatment of Herpetic (Aphthous and Aphtho-Ulcerative) Stomatitis and Herpes Labialis. H. J. Gerstenberger, Cleveland.—p. 309.
*Blood Serum Content of Inorganic Phosphorus and Calcium in Pneumonia. H. J. Gerstenberger, C. W. Burhans, D. N. Smith and N. C. Wetzel, Cleveland.—p. 329.
*Comparison of Value of Milk and Oranges as Supplementary Lunch for Underweight Children. M. S. Chaney, Berkeley, Calif.—p. 337.
Effect of Complemental Feeding in New-Born Infants. H. A. Bachmann, Chicago.—p. 349.
*Calcium and Phosphorus Metabolism in Rickets. Ultraviolet Ray Therapy. W. J. Orr, L. E. Holt, Jr., L. Wilkins and F. H. Boone, Baltimore.—p. 362.
Atresia of Esophagus, with Tracheo-Esophageal Fistula. R. H. McClellan and T. J. Elterich, Pittsburgh.—p. 373.
*Case of Hemangio-Endothelioma of Ileum. M. E. Blahd, A. S. Mashke and H. T. Karsner, Cleveland.—p. 379.
Subdural Effusion and Internal Hydrocephalus. Report of Case, with Recovery. W. G. Penfield, New York.—p. 383.

Inorganic Constituents of Human Milk.—Fifty-four specimens of human milk have been analyzed for calcium, potassium and inorganic and total phosphorus and chlorids by Burhans and Smith. The averages of the results are practically the same as those reported by others who have used mixed or twenty-four hour samples. In comparing the white with the colored race, it was found that the calcium and the inorganic phosphorus were decreased in the milk from the latter race. The chlorids were considerably increased in the milk from the colored race.

Vitamin B Treatment of Herpes and Stomatitis.—Gerstenberger found that the administration of the water soluble B vitamin produces in herpetic stomatitis, aphthous stomatitis, herpes labialis, acute gingivitis, and ulcerative stomatitis a remarkably rapid improvement and recovery. It is suggested that the primary etiologic factor in these cases is metabolic and nutritional, and that any rôle that bacteria or similar agents may play in the future development of the local lesions is secondary. This metabolic disturbance may be due to a disproportion between the water soluble B supply of the body and the metabolic requirements of the patient for this vitamin at a given time. The constant and liberal use of canned tomato is advocated as an economic and dependable source of the water soluble B vitamin.

Blood Phosphorus and Calcium in Pneumonia.—In nine of ten cases of pneumonia in nonrachitic children investigated by Gerstenberger et al., the inorganic phosphorus of the serum was decidedly reduced during the febrile stage and rose to normal during convalescence. The calcium was slightly reduced in some of the cases and normal in others. In those cases in which it was reduced, it rose to normal during convalescence, except in one instance. These findings may offer an explanation of the rôle played by respiratory infections in the development of rickets.

Value of Milk and Orange as Supplementary Lunch.—The evidence presented by Chaney indicates that a midmorning lunch is of value in overcoming a condition of underweight in children. Oranges seem most efficacious in producing a gain in weight. This may be due to the vitamin content of the orange. Milk, while it produces a favorable increase in weight, is not the only food valuable for the midmorning lunch. Concentrated bottled orange juice appears to be of marked value in stimulating growth in the underweight child. It is not equal to fresh oranges.

Calcium and Phosphorus Metabolism in Rickets.—Metabolism studies have shown that infants with active rickets fail to retain calcium and phosphorus, although an adequate amount is present in the diet. Ultraviolet radiation causes large amounts of these elements to be retained in the body. Increased amounts of calcium and phosphorus are found in the urine after ultraviolet radiation, indicating an increased absorption from the intestine. It is argued by Orr et al. that defective absorption from the intestine in active rickets is *the cause of the low concentrations of calcium and phosphorus* in the serum, and is the ultimate cause of the defective calcification of the bones.

Hemangio-Endothelioma of Ileum.—The authors assert that theirs is the only case of the kind on record. Clinically, it was a case of intestinal obstruction in a child, aged 2 months. The child died. At the necropsy a tumor was discovered 30 cm. above the ileocecal valve. The tumor was obviously a capillary angioma and the blood content of most of the capillaries justifies the term capillary hemangioma.

American Journal of Medical Sciences, Philadelphia

166: 313-468 (Sept.) 1923

*Prognosis of Syphilis. J. A. Fordyce, New York.—p. 313.
*Hemolytopoietic System in Primary Anemias. Value of Splenectomy. E. B. Krumbhaar, Philadelphia.—p. 329.
*Cause of Bothriocephalus Anemia: Report of Case. R. L. Haden, Kansas City, Kan.—p. 338.
*Cerebrospinal Fluid Pressures: Concerning Initial Fall in Pressure Readings and Method of Obtaining Standard Reading. H. C. Solomon, H. M. Pfeiffer, Boston, and L. J. Thompson, St. Joseph, Mo.—p. 341.
*Studies of Cerebrospinal Fluid in Infants and Young Children in Conditions Other Than Acute Meningitis. S. McLean, New York.—p. 350.
Value of Cranial Decompressive Operations. A. O. Wilensky, New York.—p. 365.
Bacteriology of Acute Respiratory Disease During Interepidemic Period, Conditions Favoring Streptococcus Epidemics. J. C. Small, Philadelphia.—p. 384.
Roentgenologic Study of Tuberculosis of Lungs and Intrathoracic Glands in Infancy and Early Childhood. I. E. Liss, Scarsdale, N. Y.—p. 396.
*Carcinoma of Esophagus. P. P. Vinson, Rochester, Minn.—p. 402.
Intestinal Indigestion in Eczema and Psoriasis. F. L. Burnett, Boston.—p. 415.

Prognosis of Syphilis.—Summarizing his paper, Fordyce says, that the future of the syphilitic patient depends on the knowledge and training of the physician first consulted. When the diagnosis is made, the physician should impress the patient with the necessity for vigorous and thorough modern treatment and endeavor to make him appreciate the seriousness of the disease. The author suggests that those who treat syphilis should acquaint themselves more accurately with the possible toxic effects of the modern arsenicals. Has the hypertension which is at times met with after prolonged treatment any relation to the known toxic action [illegible] ic on the blood vessels? He [illegible] nic sto [illegible] after the cessation of the usual courses of the drug? Can jaundice be prevented by a low protein diet during treatment? Is the elimination of arsenic hastened by the simultaneous use of the iodids? To what extent do various methods of *giving arsphenamin develop arsenic-fast strains of the spirochetes* and thus render further therapeutic attacks less efficient?

Hemolytopoietic System in Primary Anemias.—Bone marrow, spleen, liver, lymph nodes and reticulo-endothelial apparatus, Krumbhaar says, combine to regulate the formation and destruction of blood cells in what may be termed the "hemolytopoietic system." The methods for studying the functioning of this *system ("hemolytopoietic balance") and* the results of splenectomy in various diseases affecting this balance are presented.

Cause of Bothriocephalus Anemia.—A case of bothriocephalaus latus infestation is reported by Haden.* The patient had probably harbored the parasite for six years without showing any symptoms. There was an anemia of sudden onset *which quickly disappeared after the worm was expelled.* When recovered, a large part of the worm was in a state of decomposition. These findings lend support to the idea expressed by Faust and Tallvuist that the anemia of bothriocephalus infestation is due to absorption of hemolytic substance from the dead worm.

Variation in Cerebrospinal Fluid Pressure Readings.—Solomon and his associates call attention to the fact that when lumbar puncture is performed in the usual manner, with the patient lying on his side and well flexed, the pressure recorded shortly after the needle is inserted is apt to be two, three or four times as great as that obtained after ten minutes. Usually, a drop in pressure occurs, being quite rapid in the *first two or three minutes, then less rapid for several minutes.* From six to ten minutes after the puncture is performed, a stable equilibrium is reached and the pressure reading remains fairly constant from then on, if the patient is quiet. This is not invariably true, but occurs in the majority of instances. Several factors play a part in the production of the early high reading and subsequent fall. *The most important are the position of the patient* and the amount of tension under which he holds himself. When rigidly flexed and fearful, the pressure is always high. Relaxation and extension avoids this original fluid hypertension. If after the pressure has fallen the patient again makes himself rigid and flexes himself vigorously, the pressure will again rise and will fall once more. The rate of drop will be accelerated if the patient relaxes and extends himself. In order to have a standard for estimating cerebrospinal fluid pressure, it is necessary to observe these rules. Readings taken on patients who are fearful or struggling, which is often *the case subsequent to head trauma, may* be 300 or 400 per cent., or even more, in excess of the pressure existing during periods of rest and quiet.

Cerebrospinal Fluid in Infants.—McLean analyzes the findings on examination of 316 spinal fluids of children. In acute respiratory infections, *the cerebrospinal fluid is usually* normal. In certain cases which had an uninterrupted convalescence without sequelae, the cerebrospinal fluid showed a pleocytosis with or without a positive globulin reaction during the acute stage of the disease. It is believed that in certain of these cases the diagnosis of serous meningitis might be entertained. In acute and chronic intestinal conditions in infancy and early childhood the great majority of cases have a normal cerebrospinal fluid while a minority show a fluid with a slightly increased cell count. In all cases of tetany the cerebrospinal fluid was essentially normal; a small number only (five of thirty-one) showed a fluid with an average cell count of twenty-one. Even repeated convulsions bear no relation to the number of cells in the cerebrospinal fluid. Of four "neuropathic children" all had normal cerebrospinal fluids. It would appear from the variable findings *in four cases of cerebral thrombosis that there is nothing pathognomonic* in the cerebrospinal fluid. The fluid in congenital syphilis is clear and colorless (except in certain cases of syphilitic meningitis), and usually under normal pressure. The cytology is variable. There is some evidence in this series of cases to demonstrate *that there may be involvement of the central nervous system without pleocytosis.* The intensity of the clinical manifestations is apparently not a criterion of the cytology. In eleven of twenty-one cases of brain tumor the count was not higher than 10 cells per cubic *millimeter.* In seven cases the count was more than 100. Of fifteen cases tested for *globulin only six* were positive.

Carcinoma of Esophagus.—Dysphagia, hiccup and regurgitation were the early *symptoms noted in* the 152 cases analyzed by Vinson. Most of the patients gave histories of bolting food, meals at irregular intervals, and many used alcohol to excess. Dental sepsis was almost always present. Twenty-one of the patients had a metastasis. A history of previous *trauma to the esophagus* was not elicited in any case, but in a recent case there had been a burn of the esophagus from lye in infancy. Although no form of treatment will prolong life for many months or give great relief from dysphagia, dilation of the carcinomatous stricture with olives, *graduated sizes, has given the greatest palliation* in the Mayo Clinic. No evidence has been *obtained in the clinic* to suggest that dilatation in any way hastens metastasis. The mortality in untreated cases is 100 per cent., and surgery offers little as a curative or palliative measure. Radium or roentgen-ray *therapy is practically* valueless.

American Review of Tuberculosis, Baltimore

8: 1-92 (Sept.) 1923

*Tuberculosis of Intestines. H. Schwatt and M. M. Steinbach, New York.—p. 9.
*Associated Diseases in Pulmonary *Tuberculosis. H. C. Sweany,* Chicago.—p. 40.
*Syndrome Simulating Pulmonary Tuberculosis. A. L. Hart and W. A. Gekler, Albuquerque, N. M.—p. 53.
*Study of Limitation of Chest Movement, Chest Thickness and Muscle Spasm in *Diagnosis* of Pulmonary Tuberculosis and Their Relation to Pleurisy. A. M. Hoffman, New York.—p. 59.
*Experimental Observations on Intratracheal and Intranasal Injections in Rabbits. *H. A. Robin and H. C. Sweany, Chicago.*—p. *66.*
Antigenic Properties of Lipoids of Tubercle Bacillus. L. Dienes and E. W. Schoenheit, Asheville, N. C.—p. 73.
Demonstration of Increased Numbers of Tubercle Bacilli in Excretions of Tuberculous Patients. S. Serkowski, Warsaw, Poland.—p. 85.

Tuberculosis of Intestines.—Schwatt and Steinbach studied the pathologic findings in 199 consecutive necropsies to determine the true incidence of tuberculous disease of the intestines. The small intestine was involved somewhat more frequently (109 times) than the large *intestine (ninety-eight times).* The small intestine alone was the seat of disease thirty times and the large intestine alone nineteen times. The small and the large intestines were ulcerated in eighty cases. In over 75 per cent. of the cases the lesions involved more than one subdivision of the tract. Duodenal ulcers occurred in three cases, with *involvement once of the small intestine alone* and twice of the small and large intestines. Ulceration of the jejunum alone, or of the jejunum and large intestine without involvement of the ileum, is infrequent, one case of each in this series. The ileum was the most frequently involved segment of the intestine. It was the seat of ulcers 105 times. *Ulceration of the ileum without the jejunum was more frequent* (sixty-three times) than of ileum with jejunum (forty-two times). The ileum was also the most frequent site of sole ulceration. It occurred in twenty of the 129 cases in which the location of the lesions was noted in detail. Extensive *involvement with advanced ulceration occurred in only* two cases, one of which presented several perforations in the middle portion. Two cases showed tubercles only. Disease of the cecum was next in frequency to that of the ileum. It was free from disease in only nine of eighty cases involving the small and large intestine. *In four of these the appendix was* ulcerated. In fourteen cases the ileum and cecum, and in four cases the ileum, cecum and appendix, were involved. Tuberculous disease of the appendix occurred forty-four times with ulcerative lesions in forty cases. Sole ulceration of the appendix was noted in two cases. *The colon was the seat of* ulceration in sixty-three cases. The rectum was involved fifteen times, practically always with extensive and advanced disease of other segments of the tract. Completely healed intestinal ulcers were rarely found. In the majority of cases *the intestinal disease ran a latent course, irrespective of the*

Ogata, the fine intercellular bile capillaries are not ruptured before there is an appreciable bilirubinemia consequent to the occlusion of the common duct. In the second place, the blood serum of dogs in the first day or two after the blocking of the ductus choledochus gives the indirect Van den Bergh reaction, and in so far renders doubtful the interpretation of the indirect test when actual tissue icterus is not present. On the other hand, after the sclerae are definitely icteric, the direct test is always given. It is felt, moreover, that the ready applicability of the Van den Bergh test to the serum and the lymph, coupled with the removal of the kidneys and the gallbladder, has made it possible to decide much more definitely than has been done in the past that the removal of bile pigment from the liver in the earliest stages of mechanical jaundice is entirely by the lymph stream and not by the blood stream.

Journal of Comparative Psychology, Baltimore

3: 241-326 (Aug.) 1923

Hearing in Rattlesnakes. F. B. Manning, Boston.—p. 241.
Study of Behavior of Birds by Multiple Choice Method. M. P. Sadovinkova, Moscow.—p. 249.
Factors Affecting Duration of Postrotation Nystagmus. J. Q. Holsopple, Baltimore.—p. 283.
Yerkes Multiple Choice Method with Human Adults. W. Brown and F. Whittell, Berkeley, Calif.—p. 305.
Effects of Surroundings Upon Mental Work as Measured by Yerkes Multiple Choice Method. H. Wong and W. Brown, Berkeley, Calif. —p. 319.

Journal of Medical Research, Boston

44: 1-119 (Sept.) 1923

Pathogenesis of Experimental Pneumonia in Rabbit. H. H. Permar, Pittsburgh.—p. 1.
Mononuclear Phagocytes in Experimental Pneumonia. H. H. Permar, Pittsburgh.—p. 27.
*Electrolyte Content of Red Blood Corpuscles. Findings in Chronic Anemia and Polycythemia. T. E. Buckman, W. R. Ohler and L. L. Doherty, Boston.—p. 51.
*Relative Fragility of Reticulated Red Corpuscles. T. E. Buckman and E. MacNaugher, Boston.—p. 61.
New Principle Applied to Staining of Fibrillary Neuroglia. P. Bailey, Boston.—p. 73.
Stimulating Effect of Photocytolytic Products of Protoplasm. C. E. Barr, Boston.—p. 79.
Influence of High Partial Pressures of Oxygen on Bacterial Cultures. H. T. Karsner, H. H. Brittingham and M. L. Richardson, Cleveland. —p. 83.

Electrolyte Content of Red Blood Cells.—Buckman, Ohler and Doherty report the results of the determination of the plasma volume and the specific conductivity of the serum and solution of laked red corpuscles from seven normal men, fourteen cases of anemia of long duration, and four cases of persistent erythrocytosis. The plasma volume is not necessarily influenced by the level of hemoglobin or by the number of red corpuscles. The mean value for the cases here reported was 50.4 c.c. per kilogram of body weight. The specific conductivity of the serum is not necessarily altered by the level of hemoglobin or by the concentration of corpuscles and tends to approach a constant value of about 150 x 10^{-4}. In the series of cases reported, the specific conductivity of a 50 per cent. clear solution of the products of laked red corpuscles was proportional to the percentage volume of the red cells.

Fragility of Reticulated Red Blood Cells.—Evidence is presented by Buckman and MacNaugher to show that the reticulated cells from cases of pernicious anemia are less resistant to hypotonic salt solution than are the reticulated cells from cases of anemia due to hemorrhage. Defibrinated blood from normal subjects, from cases of anemia due to hemorrhage and cases of pernicious anemia in a stage of remission, with or without a marked increase in percentage of reticulated cells, does not undergo autolysis and does not show a diminution in the percentage of reticulated cells when incubated for twelve hours at 37 C. Defibrinated blood obtained from cases of pernicious anemia in a state of relapse showing a high percentage of reticulated cells undergoes autolysis and shows a marked diminution in the percentage of reticulated cells when incubated at 37 C. for twelve hours. It is suggested that the reticulated cells may contain proteolytic enzymes which would be liberated on destruction of these cells and thus effect autolysis of the serum.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

22: 59-138 (Sept.) 1923

*Standardization of Ergot Preparations. W. A. Broom and A. J. Clark, London.—p. 59.
*Erythropoietic Action of Red Bone Marrow and Splenic Extracts. C. D. Leake and E. W. Leake, Madison, Wis.—p. 75.
*Histologic Detection of Iodids. E. J. Stieglitz, Baltimore.—p. 89.
*Drugs and Basal Metabolism. W. M. Boothby and L. G. Rowntree, Rochester, Minn.—p. 99.
Leukocytic Reactions to Red Bone Marrow and Spleen Extracts. C. D. Leake, Madison, Wis.—p. 109.
Behavior of Rats After Injections of Bile Salts, Urea, Creatin and Creatinin. D. I. Macht, Baltimore.—p. 117.
Absorption of Drugs Through Eye, Ear, Teeth and Esophagus. D. I. Macht, Baltimore.—p. 123.

Standardization of Ergot Preparations.—The action of the ergot alkaloids in paralyzing the motor sympathetic endings in the isolated uterus of the rabbit, according to Broom and Clark, can be made the basis of a convenient method for standardizing ergot preparations. The method measures only the alkaloidal content of ergot and is not affected by the presence of amins such as histamin and tyramin. The results obtained by this method agree fairly well with the results obtained by the cockscomb method, and with the method based on the reversal of the epinephrin effect on the cat's blood pressure. Quite different results are obtained with the isolated uterus of the guinea-pig, and the uterus of the cat in situ. These methods measure very largely the amin content of ergot preparations. Liquid extract of ergot prepared strictly in accordance with the directions of the British pharmacopeia is said to be almost completely devoid of ergot alkaloids.

Erythropoietic Action of Red Bone Marrow and Spleen Extracts.—It is concluded by Leake and Leake that splenic and red bone marrow extracts are more powerful erythropoietic agents in combination than separately, and it is indicated that they act first, by increasing the rate of production or delivery in existing erythrogenic centers; and, second by causing an extension of functioning red marrow.

Histologic Detection of Iodids.—It is shown by Stieglitz that iodid ions may be detected histologically in tissue cells in very minute amounts by a relatively simple technic. The iodids, thus identified in the tissues, have a very characteristic distribution. They occur almost exclusively in parenchymatous secreting cells.

Effect of Epinephrin on Basal Metabolism.—Epinephrin was the only drug studied by Boothby and Rowntree which produced, in the doses used, a definite or consistent alteration in the level of the basal metabolic rate of an order exceeding 10 per cent. within two hours of administration. Epinephrin has a definite and intensive calorigenic action with its maximum effect a few minutes after administration. Insulin does not apparently possess a direct calorigenic action, although it causes an increase in the basal metabolic rate in the fasting individual if the blood sugar falls to a critical level associated with symptoms of hypoglycemia. In the clinical estimation of the basal metabolic rate neither epinephrin nor insulin should be given within several hours preceding the test. The administration of iodids does not affect the metabolism of a normal person, but may convert a case of adenomatous goiter without hyperthyroidism into one with hyperthyrodism, and the increased metabolism, when so produced, represents the intensity of the new syndrome.

Maine Medical Association Journal, Portland

14: 27-48 (Sept.) 1923

Unilateral Hydronephrosis. C. H. Jameson.—p. 27.
Who Should Practice Medicine in Maine. C. P. Barnes, Houlton.—p. 34.

New York Medical Journal and Medical Record

118: 397-468 (Oct. 3) 1923

Summary of Symptoms of Lethargic Encephalitis. F. X. Dercum, Philadelphia.—p. 397.
Catalepsy in Epidemic Encephalitis. J. H. Musser, Jr., and A. E. Bennett, Philadelphia.—p. 399.
*Incidence of Acute Epidemic Encephalitis in Bellevue Hospital in January, February and March, 1923. R. S. Crispell, New York.—p. 402.
Psycho-Analysis. J. Smith, New York.—p. 404.

Aseptic Meningitis in Combating the Dementia Praecox Problem. R. S. Carroll, Asheville, N. C.—p. 407.
Myotonia. Case of Paramyotonia, Limited to Orbicularis Palpebrarum. A. Gordon, Philadelphia.—p. 412.
Psychology as Factor in Practice of Medicine. H. W. Potter, Thiells, N. Y.—p. 414.
*Physiologic Diagnostic Dream. E. G. Mitchell, Boston.—p. 416.
Case of Optic Atrophy in Multiple Sclerosis. A. S. Maclaire, New York.—p. 418.
Atypical Amyotrophic Lateral Sclerosis. E. D. Friedman, New York. p. 422.
Ateriosclerosis of Nervous System. G. E. Price, Spokane, Wash.—p. 425.
Lumbar Puncture in Neurosyphilis. A. B. Cannon, New York.—p. 430.
Visceral Neurology in Relation to Clinical Medicine. J. H. Leiner, New York.—p. 434.
*Roentgen-Ray Signs of Increased Intracranial Pressure. L. J. Friedman, New York.—p. 437.
Tumors of Cerebellum. P. K. Menzies, Syracuse, N. Y.—p. 441.
Confused States Following Infections. I. J. Sands, Brooklyn.—p. 444.
Case of Chorea. R. Sheehan, New York.—p. 446.

Analysis of Cases of Acute Epidemic Encephalitis.—Forty-two cases were reviewed by Crispell. In only five cases was it noted that the patient had a preceding attack of influenza or other respiratory disease. In twenty-six cases the onset was gradual while in nine it was sudden. In the majority of cases the onset was attended with neuralgic pains, which often lasted throughout the disease and into convalescence. The most frequent sites of these pains were the back of the head, the neck and down the arms. The most constant symptoms were those referred to disturbance of movements of the eyeballs. Sluggish pupils were present in ten cases. Insomnia, especially at the beginning of but often lasting throughout the disease, was a complaint of ten or more of the patients. Delirium or clouded consciousness was present in ten cases. Except for myoclonic twitchings, there was little mention of adventitious movements. Dizziness was complained of in a few cases. Autonomic symptoms were not prominent. No case of the forty-two showed any pryamidal signs, with the possible exception that in several the abdominal reflexes seemed to be absent. In three cases a slight suggestion of rigidity of the neck was noted; in only one case was the neck described definitely as rigid. As diplopia was the most common subjective symptom, myoclonic twitchings constituted the most constant objective sign. They were definitely noted in twenty-three cases, most commonly in the abdomen, but also in the extremities. In several cases myoclonic twitchings were the outstanding factor and the factor on which the diagnosis of epidemic encephalitis hinged. The leukocyte count averaged between 11,000 and 12,000. Three cases having a count of 20,000 or more proved fatal. A slight pleocytosis, averaging from twenty to thirty cells, was the only constant spinal fluid finding. Twelve of the forty-two cases were fatal.

Physiologic Diagnostic Dream.—In the physiologic diagnostic dream, so termed by Mitchell, sex symbolism is a secondary matter. The beginning lesions are giving rise to pains or sensations so slight that they remain unnoticed during the distractions of the day. In sleep the stimulus produces a dream whose content corresponds absolutely to the type of sensation and to the location of the physical trouble. A characteristic of these dreams seems to be that they are repeated. Four cases in point are cited.

Roentgen-Ray Signs of Increased Intracranial Pressure.—In the examination of about 3,000 cases, of which 750 were examined for evidences of injury or pathology, evidences of intracranial pressure were observed by Friedman in about 75 per cent. Roentgenologically, intracranial pressure can be divided into acute, subacute and chronic. The acute type can readily be interpreted by observing a peculiar mottling of the skull field, better described as areas of increased illumination with intervening spaces of the normal brain shadow. This appearance justifies the diagnosis of a diffuse mild form of edema of the brain. This edema may arise not only from injury, but also from laceration of the brain which occurs in concussion. In every case in which lumbar puncture was performed shortly after an injury, bloody spinal fluid was found even though there was no evidence of a fracture. The subacute type of intracranial pressure is observed at a more remote period after an accident and is accompanied by certain subjective symptoms such as headache and vertigo. Roentgenologically, the presence of subacute intracranial pressure is also recognized by the presence of mottling, although not as extensive as that seen in the acute form. The roentgenologic characteristics of chronic intracranial pressure are evidences of crescentic osteoporotic areas of the inner table of the skull which may be general or confined to the frontal, parietal or occipital areas.

Northwest Medicine, Seattle

22: *301-336* (Sept.) *1923*

*Experimental Prophylactic Inoculation Against Rocky Mountain Spotted Fever. H. Noguchi, New York.—p. 301.
Maintenance of Virus of Rocky Mountain Spotted Fever in Nature with Particular Reference to Conditions in Bitter Root Valley. R. R. Parker, Hamilton, Mont.—p. 303.
Clinical Importance of Vital Capacity of Lungs. F. W. Peabody, Boston.—p. 307. (To be concluded.)
*Innervation of Lung. O. Larsell, Portland.—p. 311.
Influenza and Influenzal Pneumonia. C. Frothingham, Boston.—p. 316.
Acute Empyema. J. C. Shields, Butte, Mont.—p. 320.
Treatment of Chronic Suppuration of Middle Ear by Ionization of Zinc. M. C. Fox, Portland.—p. 323.
Structure and Function of Acoustic Labyrinth, Etc. G. E. Shambaugh, Chicago.—p. 326.

Prophylactic Inoculation Against Rocky Mountain Spotted Fever.—The fact that it is possible at all to produce a certain degree of immunity against Rocky Mountain spotted fever by means of heated serovaccine, Noguchi asserts is of practical significance, and this mild mode of immunization, with killed virus as one of the components of the vaccine, is worth trying in human beings, since it involves no risk and yet is likely to produce a degree of immunity which, if not enough to prevent infection altogether, will, perhaps, be sufficient to modify the course of the disease to a less severe type.

Innervation of Lung.—Larsell follows only the nerve trunks and their branches from the point of entrance into the lung, at the hilum, to their various terminations, motor and sensory, with some attention to the intrapulmonary ganglions and the relations of the plexuses, with the hope of throwing light from an anatomic standpoint on certain obscure conditions and relations within the lung.

Philippine Journal of Science, Manila

23: 237-305 (Sept.) 1923

Diagnosis of Hainan Plants, II. E. D. Merrill.—p. 237.
Composition of Pili-Nut Oil. A. P. West and S. Balce.—p. 269.
Effect of Composition on Complete Hydrogenation of Some Philippine Oils with Nickel Catalyst. A. P. West and L. Gonzaga.—p. 277.
Some New Malayan Carabidae, Especially Philippine. K. M. Heller, Dresden, Ger.—p. 295.

South Carolina Medical Association Journal, Greenville

19: 579-606 (Sept.) 1923

Problem of Cardiovascular-Renal Disease. R. Wilson, Charleston.—p. 580.
Significance of Bladder Symptoms. M. Weinberg, Sumter.—p. 586.
Pharmacology of Certain Endocrine Glands. W. H. Zeigler, Charleston.—p. 590.

Tennessee State Medical Association Journal, Nashville

16: 157-196 (Sept.) 1923

Our Responsibility as Regards Better Vision for School Children of Tennessee. L. M. Scott, Jellico.—p. 157.
Peptic Ulcer. R. L. Sanders and C. C. King, Memphis.—p. 160.
Deductions from Review of One Thousand Roentgen-Ray Examinations of Gastro-Intestinal Tract. S. W. Coley, Memphis.—p. 165.
Version. R. O. Tucker, Nashville.—p. 170.
Country Obstetrics. K. S. Howlett, Franklin.—p. 176.
Improvement of Hearing. E. D. Watkins, Memphis.—p. 181.
Fibroma of Ovary. Report of Two Cases. F. W. Smythe, Memphis.—p. 184.

Wisconsin Medical Journal, Milwaukee

22: 151-192 (Sept.) 1923

Diagnosis and Treatment of Brain Tumors. W. E. Dandy, Baltimore.—p. 151.
Ectopic Gestation. Report of Cases. T. W. Nuzum, Janesville.—p. 154.
Surgical Aspects of Uterine Malpositions. J. A. Pettit, Portland, Ore.—p. 157.
Cystography in Diagnosis of Urologic Conditions. I. R. Sisk, Madison.—p. 160.
Barraquer Method of Cataract Extraction. V. .—p. 164.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

17: 304-441 (Oct. 13) 1923

Treatment of Malaria. XXXII. J. W. W. Stephens.—p. 304.
Australian Cestodes. P. A. Maplestone and T. Southwell.—p. 317.
Ophiotaenia Punica (Cholodovski, 1908) La Rue, 1911. T. Southwell and S. Adler.—p. 333.
Pyrrhocorid Bug (Dysdercus superstitiosus, F.) Capable of Biting Man. B. Blacklock.—p. 337.
Typhus Fever in Greek Refugees. P. Hehir.—p. 347.
*Value of Sachs-Georgi Reaction in Serologic Diagnosis of Syphilis. G. Stuart.—p. 359.
Aedinus Amazonensis, Lutz. A. M. Evans.—p. 377.
*Treatment of Amebic Dysentery. R. M. Gordon.—p. 381.
*Relapsing Fever in Gold Coast. P. S. Selwyn-Clarke and A. Ingram. —p. 389.
*Carbon Tetrachlorid in Filiariasis. S. Adler.—p. 427.
Yellow Fever in Gold Coast. Its Endemic and Epidemic Character. R. O. White.—p. 431.

Value of Sachs-Georgi Test in Diagnosis of Syphilis.—It is Stuart's belief that the Sachs-Georgi test cannot take the place of the Wassermann test, and should not be employed alone unless it is impossible to obtain the reagents necessary for the performance of the Wassermann test. The Wasserman reaction remains positive longer than the Sachs-Georgi reaction. A negative Sachs-Georgi reaction, then, in treated cases would not form a reliable index as to the cure of the patient. The Sachs-Georgi reaction remains negative in certain definitely established cases of syphilis, and for no apparent reason. It is justifiable, therefore, perhaps to conclude that a negative Sachs-Georgi reaction is of little or no value.

Treatment of Amebic Dysentery.—One hundred and fifty cases of amebic dysentery were given various forms of treatment and subsequently kept under observation for from one to six months or longer. Of these 150 cases, 101 (66 per cent.) relapsed. Among all the cases treated only six patients (4 per cent.) were observed to be passing *E. histolytica* cysts after treatment. Sixteen were given emetin periodid, 6 grains daily. Eight of these (50 per cent.) relapsed within one month. Giving this drug in gelatin capsules was found to be unsatisfactory as they frequently passed through the intestine without dissolving. When mixed with a little milk and given by the mouth the periodid did not produce vomiting. Owing to the inequality of the observation periods no attempt was made to compare the value of any two forms of treatment.

Spironema Causes Relapsing Fever.—This first recorded outbreak of relapsing fever in British West Africa was due to a spironema conveyed by lice. As regards inoculation experiments made by Clarke and his associates, monkeys and black and white rats became infected with the strain, but did not have a relapse; guinea-pigs and rabbits were refractory, while the pouched rat became infected and had a relapse. The vectors of the organism in this epidemic and inoculation experiments suggest that the parasite is not the *Sp. duttoni*, but corresponds more closely to *Sp. recurrentis (vel obermeieri)*, or a related strain.

Carbon Tetrachlorid in Filariasis.—After performing preliminary experiments with carbon tetrachlorid administered orally, it was decided to try the effect of the drug administered intravenously and intramuscularly to animals. Adler gave the drug to four adult patients each with a slight infection of *Filaria bancrofti*. None showed any marked diminution of the microfilaria in the blood after the treatment, but in view of the comparative safety with which the drug can be administered, both intravenously and intramuscularly, Adler suggests that carbon tetrachlorid be tried in cases of *Loa loa* infection.

British Journal of Anaesthesia, Manchester

1: 1-54 (July) 1923

Early Anesthesia. Sir D. Power.—p. 4.
Painless Childbirth by Synergistic Methods. E. P. Donovan and J. T. Gwathmey.—p. 8.
Sacral or Epidural Analgesia. J. Blomfield.—p. 22.
New Anesthetics: Ethylene; Acetylene. C. L. Hewer.—p. 27.

British Journal of Ophthalmology, London

7: 401-448 (Sept.) 1923

Congenital Miosis or Pinhole Pupils Owing to Developmental Faults of Dilator Muscle. S. Holth and O. Berner.—p. 401.
Binocular Choroidal Tuberculosis with Detachment of Retina in Two Kittens. J. B. Lawford and H. Neame.—p. 419.
Tournay's Reaction (Anisocoria). P. G. Doyne.—p. 420.
Wernicke's Pupillary Reaction. J. D. Cummins.—p. 421.

British Journal of Tuberculosis, London

17: 155-194 (Oct.) 1923

Swiss Health Stations for Consumptives and Other Tuberculous Subjects. T. N. Kelynack.—p. 155.
Psychophysiologic Aspects of Montana (Switzerland) Climate in Winter. L. Hill.—p. 175.
Montana. Climatic and Therapeutic Considerations. B. Hudson.—p. 176.
Visit to Danish Sanatorium. J. Johnstone.—p. 179.

British Medical Journal, London

2: 591-638 (Oct. 6) 1923

Problem of Success for Medical Women. H. Rolleston.—p. 591.
*Regulating and Reflex Process. P. T. Herring.—p. 594.
*Causes of Intestinal Obstruction. J. W. Thomson.—p. 597.
Case of Angiochorioma. O. J. Reid and A. N. Kingsbury.—p. 598.
*Hemophilia in Female. M. Warde.—p. 599.
*Insulin Treatment: Suggestion for Optical Method. W. F. Lloyd.—p. 600.
Use and Abuse of Obstetric Forceps. C. Berkeley.—p. 600.
Id. J. Fairbairn.—p. 604.
Unilateral Gynecomastia. A. A. Pomfret.—p. 609.
Hemorrhagic Disease of New-Born Treated Successfully by Injections of Father's Blood. F. W. Robertson.—p. 609.

Regulating and Reflex Process.—Herring contends that we must look for the first signs of ill health in the nervous regulating processes of the body. They are the basis of the vital activities and maintain the life of the organism as a unit. Disturbance of the vital processes is the first sign of ill health, and their failure is the ultimate cause of death.

Causes of Intestinal Obstruction.—Among the causes of intestinal obstruction enumerated by Thomson are: volvulus; duodenal hernia; gallstones; uterine fibroid and inguinal or femoral hernia.

Hemophilia Transmission.—According to family tradition the disease in this case was traceable through the paternal grandmother from her father to her son, the patient's father. The latter exhibited a great tendency to bruising and had epistaxis about every two weeks. Trivial injuries frequently caused swelling of the joints, one or other of which was almost constantly affected. Death is thought to have been due to hemorrhage connected with fracture of the leg, which occurred shortly before, "fragments of bone working out with much bleeding."

Determination of Sugar in Solutions.—Lloyd has made determinations of the amount of glucose in solutions by measuring the index of refraction of the solution. The instrument used depends on the measurement of the critical angle. The instrument is simple and only one or two drops of the liquid are required.

639-684 (Oct. 13) 1923

Some Changes in Obstetric Practice Since Foundation of Medical Society of London. H. R. Spencer.—p. 639.
Regulating and Reflex Process. Nerve Impulse; Importance of Receptors; Production of Pain. P. T. Herring.—p. 643.
*Pellagra in Children. R. Hutchison and D. Patterson.—p. 646.
Case of Fracture of Skull Causing Death (Cerebral Necrosis) after Eleven Years. S. Smith and M. Emara.—p. 647.
Roentgen-Ray Examination of Urinary Tract. R. W. A. Salmond.—p. 648.
Ophthalmology in Relation to Navy, Army and Air Force. D. Munro and C. Clements.—p. 654.
Vision in Gun-Layers. W. K. D. Breton.—p. 658.
Naval Lighting. R. J. E. Hanson.—p. 658.
*Pneumothorax. A. S. Hendry.—p. 659.

Pellagra in England.—In both the cases reported by Hutchison and Paterson the rash and affection of the nervous system appear to be typical. Apart from the fact that at some period prior to the onset of symptoms both children were fed large quantities of "corn-flour," there is nothing in the history which would fit in with the various theories of the causation of pellagra. In one case the diet seemed to have contained a sufficiency of protein of high biologic value. These children had both resided all their lives in England.

Traumatic Pneumothorax.—Hendrie's patient had pneumonia in 1914, followed by whooping cough. While playing football, Nov. 17, 1922, an opponent knelt on his chest. He felt a very slight pain, but no dyspnea. The next morning he complained of slight pain in the left side of the chest over the precordium. There was no evidence of fractured rib. In two days he felt perfectly well. He played football again, November 24, and, after the game complained of slight shortness of breath. Over the right lower lobe posteriorly there was an area of high pitched distant bronchial breathing. The roentgeon ray showed a moderate sized pneumothorax at the outer and lower side of the right pleural cavity.

Glasgow Medical Journal

18: 161-208 (Oct.) 1923

Tuberculin. J. Crocket.—p. 161.
*Results of Clinical Laboratory Tests in Diagnosis of Various Types of Jaundice. A. S. Barr.—p. 174.
Local Medical Diathermy. A. B. MacLean.—p. 187.

Value of Laboratory Tests in Diagnosis of Jaundice.—Barr discusses the urobilin test, the van den Bergh test, the Widal hemoclasic crisis test and the levulose tolerance test. He believes that it is a scientific duty to accept these tests with caution—if not, indeed, with suspicion—but at the same time to keep an open mind, and to use every possible opportunity to add to the list of experiences from which alone the value of any test can ultimately be judged.

Indian Medical Gazette, Calcutta

58: 401-452 (Sept.) 1923

Dengue Sand Fly Fever Problem. J. W. D. Megaw.—p. 401.
*Treatment of Malaria by Quinin in Combination with Magnesium Sulphate and Alkali. J. A. Sinton.—p. 406.
Failure of "Bayer 205" in Treatment of Kala-Azar. L. E. Mapier.—p. 415.
Outbreak of Diphtheria at Bishop Cotton's School, Simla. E. S. Phipson.—p. 417.
Schick Test and Immunization by Toxin-Antitoxin in Assam. E. C. R. Fox, E. J. C. McDonald and T. C. McC. Young.—p. 419.
Dissemination of Human Helminthic Infections by Animals in India. G. C. Ramsay.—p. 422.
Dietary of Scholars. J. L. Das.—p. 424.
*Effect of Intravenous Injections of Antimony Tartrate on Development of Vaccinia Virus. J. Cunningham and J. A. Cruickshank.—p. 427.
Occurrence of Balantidium Coli in Feces of Indian. J. A. Sinton.—p. 432.
Cancrum Oris Treated by Excision and Subsequent Tube Grafting. L. W. Hefferman.—p. 434.

Quinin-Magnesium Sulphate Treatment of Malaria.—On the basis that the malarial paroxysm is of the nature of an "anaphylactoid" phenomenon, Sinton developed what might be termed a combined quinin-alkali treatment, thus assisting the natural defenses of the body to combat any tendency to "acidosis" or diminished alkali reserve, making the reaction of the body fluid more favorable to the optimum parasiticidal action of the quinin and at the time helping to alleviate the symptoms of cinchonism. The alkaline mixture, per dose, consists of sodium bicarbonate, 60 grains, and sodium citrate, 40 grains in 1 ounce of water. The quinin mixture consists of quinin sulphate, 10 grains; citric acid, 30 grains, magnesium sulphate, 60 grains in 1 ounce of water. One dose of each mixture, from fifteen to thirty minutes apart, is given thrice daily for four or five days and twice on each of two successive days; 180 grains of quinin is given in seven days. Very favorable reports are made from the use of this treatment.

Effect of Antimony on Development of Vaccinia Virus.—The results of experiments reported by Cunningham and Cruickshank appear to show that the intravenous injection of potassium antimony tartrate has no effect on the development of vaccinia in the calf. It is, therefore, more than likely that it has little or no effect on the development of the virus of variola in the human subject.

Irish Journal of Medical Science, Dublin

291-338 (Oct.) 1923

*Transient Unilateral Hyperhidrosis Localis Immediately Following Eating of Highly Acid Food Stuffs. R. Hall.—p. 291.
Interpretations of Sulci on Certain Bones. A. K. Henry.—p. 295.

Transient Unilateral Hyperhidrosis Following Ingestion of Acid Foods.—Hall relates the case of a man who would have a reddish blush over his right cheek bone about midway between his eye and ear immediately after eating highly acid foodstuffs such as rhubarb, stewed gooseberries, baking apples or vinegar (either hot or cold), and this was quickly followed by small beads of sweat over the blush spot, which then gradually resumed its normal appearance. Nothing was found in the general condition to account for this.

Journal of General Physiology, London

6: 1-129 (Sept.) 1923

*Effect of Radioactive Radiations and Roentgen Rays on Enzymes. II. Effect of Radiations from Radium Emanation on Pepsin in Solution. R. G. Hussey and W. R. Thompson, New York.—p. 1.
*Id. III. Unit of Measure of Activity for Radium Emanation. R. G. Hussey and W. R. Thompson, New York.—p. 7.
Minimum Concentration of Oxygen for Luminescence by Luminous Bacteria. E. N. Harvey and T. F. Morrison, Princeton, N. J.—p. 13.
Rate of Growth of Dairy Cow. III. Relation Between Growth in Weight and Increase of Milk Secretion with Age. S. Brody, A. C. Ragsdale and C. W. Turner, Columbia, Mo.—p. 21.
Id. IV. Growth and Senescence as Measured by Rise and Fall of Milk Secretion with Age. S. Brody, A. C. Ragsdale and C. W. Turner, Columbia, Mo.—p. 31.
Rate of Senescence of Domestic Fowl as Measured by Decline in Egg Production with Age. S. Brody, E. W. Henderson and H. L. Kempster, Columbia, Mo.—p. 41.
Absorption of Ions by Plants, Including Observations on Effect of Light. D. R. Hoagland and A. R. Davis, Berkeley, Calif.—p. 47.
Changes in Stability and Potential of Cell Suspensions. I. Stability and Potential of Bacterium Coli. A. H. Eggerth, Brooklyn.—p. 63.
Function of Brain in Locomotion of Polyclad Worm, Yungia Aurantiaca. A. R. Moore, Naples, Italy.—p. 73.
Studies on Toxicity. E. I. Fulmer and R. E. Buchanan, Ames, Iowa.—p. 77.
Membrane Potentials and Colloidal Behavior. A. V. Hill, Manchester, England.—p. 91.
Id. Reply to Note by Professor A. V. Hill. D. I. Hitchcock, New York.—p. 93.
Combination of Deaminized Gelatin with Hydrochloric Acid. D. I. Hitchcock, New York.—p. 95.
Location of Forces Which Determine Electrical Double Layer Between Collodion Particles and Water. J. Loeb, New York.—p. 105.

Unit of Measurement of Radium Emanation.—Hussey and Thompson introduce a unit to express activity or power of a given preparation of radium emanation. They have named this unit the curie-power and defined it as the activity of 1 curie of radium emanation. They suggest the introduction of this unit in order that more comprehensive statements of experimental observation may be made.

Journal of Laryngology and Otology, Edinburgh

38: 513-564 (Oct.) 1923

Treatment of Large Foreign Bodies Impacted in Gullet. D. R. Paterson.—p. 513.
Case in Which Endoscopic Search for Fish Bone in Gullet was Followed by Cellulitis in Neck, and Abscess in Chest Wall. N. Maclay.—p. 518.
Diseases of Thyroid in Their Relation to Laryngology. F. H. Diggle.—p. 522.
Case of Hemangioma of Right Vocal Cord. J. A. Jones.—p. 528.

Journal of State Medicine, London

31: 401-450 (Sept.) 1923

*Diet Deficiencies in Relation to Public Health. H. P. Newsholme.—p. 401.
*Mineral Constituents of Milk. W. Godden.—p. 410.
Smallpox, Jenner and Vaccination. C. K. Millard.—p. 416.
Cancer. Its Prevention. J. Brown.—p. 427.
Medical Inspection of School Children in Natal. C. G. K. Sharp.—p. 437.

Deficiency in Diet and Public Health.—In general, Newsholme says, all is likely to be well if the modern diet is supplemented by a daily supply of foods rich in vitamins, in mineral matter, and in protein of good food value. The best foods for the purpose are milk and milk products, eggs, green vegetables and fruit. With a sufficiency of these there is no reason why the rest of the diet should not consist of the cheaper foods which bulk so largely at present. The great need at the moment is that by every possible means people should be educated to a knowledge of the defects in the national diet, and of the simple precautions which can counteract its evil effects. A good deal is already being done, through the education of school children in elementary hygiene, though cookery classes, through the work of health visitors and of infant welfare centers, and of voluntary agencies. There is, however, scope for a vast expansion of activity in these directions, with results which will be far greater than the labor involved.

Mineral Constituents of Milk.—Godden stresses the fact that the mineral constituents of milk are of the highest importance to the growing animal. Deficiency of one or more of these constituents may result in arrested growth, rickets, or anemia. When artificial feeding is necessary, care should be taken to ensure an adequate supply of a properly balanced mineral mixture in the food, using the average composition of the ash of human milk as a guide. Attention should be paid to the ratio between the percentage of ash and of the organic constituents of such artificial foodstuffs. An adequate supply of fat has a marked influence on the assimilation of calcium.

Journal of Tropical Medicine and Hygiene

26: 297-312 (Oct. 1) 1923

Malaria in Transvaal. H. A. Spencer.—p. 297.

Lancet, London

2: 687-816 (Oct. 6) 1923

Founding of the Lancet.—p. 687.
Problem of Success for Medical Women. H. Rolleston.—p. 765.
Proper Utilization of Senses. H. J. Waring.—p. 767.
"Practice." E. B. Turner.—p. 769.
Team-Work in Nature. S. Hastings.—p. 774.
*Early Experiences with Insulin in Treatment of Diabetes Mellitus. N. Burgess, J. M. H. Campbell, A. A. Osman, W. W. Payne and E. P. Poulton.—p. 777.
*Silhouette Radiogram. A. P. Bertwistle.—p. 783.
*Results of Schick Method. B. A. Peters.—p. 784.
Pregnancy Complicating Fibroids in Primipara Aged Forty-Six. A. L. McIlroy.—p. 784.
Jaw-Winking. J. A. Wilson.—p. 785.
*Diphtheria of Big Toe. E. Emrys-Roberts.—p. 785.

Action of Insulin.—The treatment over a period of 108 days of a severe case of diabetes, requiring 75 units of insulin a day, is described by Burgess and others. Figures are given illustrating the effect of insulin in diminishing ketosis in diabetes and diabetic coma. Insulin had no effect when given by mouth mixed with sodium bicarbonate or by rectum. When mixed with gum and injected subcutaneously, the absorption was a little delayed and a larger dose was tolerated. Evidence, arising out of the administration of a very large dose of insulin, showed that it causes storage of carbohydrate in some form. When the depots are full, insulin does not have such a big effect in lowering the amount of the blood sugar. The marked rise in respiratory quotient with insulin is explained on Dale's hypothesis that insulin also caused carbohydrate to be burned in preference to other foodstuffs, and the fall in oxygen intake is explained by the low specific dynamic action of carbohydrate.

Silhouette Roentgenograms.—To make silhouette roentgenograms, Bertwistle scratches the negative with a pin, carefully following the skin outline. Then he makes a print and blocks out the background with India ink. Most negatives show a well defined skin outline. The actual result is a silhouette roentgenogram, a combination which has the properties of a roentgen-ray plate and a clean cut silhouette, displaying the deformity or otherwise of the soft parts. The advantages are said to be: (1) a more striking clinical picture, often rendering a photograph unnecessary; (2) the ease with which it may be obtained; (3) the position in which the limb is photographed is indicated and (4) the cause of the whole deformity may be analyzed at a glance.

Results of Schick Method.—Two hundred and twelve persons, all members of the staff of a hospital, were tested by the Schick method. Eighty-five, or 40 per cent., gave a positive or pseudopositive reaction. Among those who had had previous attacks of diphtheria, eighteen gave a negative test (one of these had diphtheria twice) and six a positive test (one of these had also had two attacks within three years). Among the older members of the staff who had been in contact with diphtheria for periods varying from a few months to five and a half years without contracting the disease, seven gave positive reactions varying from slight to very strong. Among those giving negative tests, two developed clinically follicular tonsillitis with a profuse growth of diphtheria bacilli in culture, and three developed a definite clinical attack of diphtheria, including the author who contracted the disease after fourteen years' daily contact with it, and the ward sister who had had eight years fever nursing. Among those inoculated with toxin-antitoxin mixture, two developed diphtheria, while being immunized (not then being in contact with known cases of diphtheria), and one two months after completion of an immunizing course. Out of 127 with negative Schick tests, five, or 4 per cent., contracted scarlet fever. This suggests some relationship in the susceptibility of the two diseases and is in accord with the well known fact that those suffering from scarlet fever are highly susceptible to diphtheria, and vice versa. These results suggest that the claims for these methods are decidedly exaggerated in the presence of heavy and repeated doses of a virulent type of infection, such as was present in this area during most of the time in which these observations were made.

Diphtheria of Toe.—In Roberts' case the diphtheric lesion was limited to the site of a blister on the big toe. Bacilli were found and prompt relief followed the administration of antitoxin.

2: 817-864 (Oct. 13) 1923

Some Changes in Obstetric Practice. H. R. Spencer.—p. 817.
*Manipulative Surgery. R. C. Elmslie.—p. 821.
*Relation of Gastric Ulcer to Carcinoma. J. Morley.—p. 823.
Glaucoma. G. P. Hawker.—p. 826.
Two Cases of Dipylidium Caninum in Children. J. Ferguson and G. R. Tudhope.—p. 828.
Use of Insulin in General Practice. H. MacLean.—p. 829.
Traumatic Rupture of Hydronephrosis. J. B. Macalpine.—p. 833.
Congenital Tumor (Fibroma) of Tibia. D. D. Pinnock.—p. 833.
Future of Drug Therapy. W. E. Dixon.—p. 845.

Manipulative Surgery.—Whenever there is a possibility of improvement by well judged manipulation Elmslie urges its trial. Whenever a joint or muscle is apparently normal, yet painful, manipulation is worth a trial. Disease and mechanical defect having been eliminated, no possible harm can result, and in nine cases out of ten some minor adhesions, undetectable by clinical examination, will be felt to give and the patient will be cured. Elmslie believes that surgeons fail to cure by manipulation most often by their failure to give the method a trial.

Relation of Gastric Ulcer to Carcinoma.—The cases on which Morley bases his conclusions have been under his care and the records have all been taken by him personally or by residents under his direct supervision. The cases fall into three groups. Group 1 was a series of fifty cases of chronic gastric ulcers, removed either by partial gastrectomy or local excision. Group 2, supplementary to Group 1, consisted of ten chronic ulcers treated by simple gastroenterostomy. Group 3 was a series of fifty-six cases of clinically proved cancer of the stomach. While it cannot be denied that cancer may develop in the edge of a chronic gastric ulcer, or in some part of a stomach that is or has been afflicted by a chronic gastric ulcer, Morley asserts that his investigation provides no evidence that the development of cancer on gastric ulcer occurs with anything like the frequency claimed by some authorities. The evidence set forth in this paper points to the conclusion that a patient with a chronic simple ulcer of the stomach is little, if at all, more liable to cancer than a healthy person. Roughly, 30 per cent., of cases of cancer of the stomach give rise to symptoms which simulate more or less closely those usually associated with simple ulcer, and Morley holds that it is this ulcer simulating cancer which is responsible for the belief in the cancerous degeneration of simple ulcers.

South African Medical Record, Cape Town

21: 413-436 (Sept. 22) 1923

Microscopy of Living Eye by Means of Gullstrand's Slit Lamp. W. Mulder.—p. 415.
Case of Diabetes Mellitus Treated with Insulin. F. W. P. Cluver.—p. 421.
Benign Tertian Malaria. D. M. MacRae.—p. 424.
Epidemic Cerebrospinal Meningitis. J. P. Johnson.—p. 426.
Edinburgh Gas Pipe Frame for Fractured Femurs. A. L. McGregor.—p. 426.

Archives Franco-Belges de Chirurgie, Brussels

26: 615-710 (July) 1923

*Denervation of the Kidney. E. Papin.—p. 615.
*Tuberculous Pyosalpinx. G. Gayet.—p. 644.
*Calculus in Lumbar Ureter. M. Soubeyran.—p. 663.
Anesthesia in Surgery of the Kidney. F. Cathelin.—p. 670.

Neurectomy of the Renal Nerves.—Papin has performed this operation in twenty-seven cases, and declares it is absolutely harmless. All his patients were permanently relieved of pains in the kidney or were materially improved, without the nephrectomy which would otherwise have been required. He describes the technic and the details of some typical cases of painful hematuric nephritis or neuralgia in the kidney. He does not cut but tears the nerves in the kidney pedicle. The operation in one case was done on the remaining kidney, two years after nephrectomy for hydronephrosis.

Tuberculous Pyosalpinx.—Gayet's two personal cases and several in the literature show that a tuberculous abscess in the right adnexa can perforate into the bladder insidiously. The pus in the urine was always a casual discovery. This explains, perhaps, the rarity of these cases, and teaches that the urine should be watched in women with tuberculosis in the genital tract. The intermittent appearance of the pus is characteristic of these fistulas; with rest the pus may disappear. The fistula may become obliterated at times, like a perianal fistula. In his cases, cystoscopy had to be repeated several times before the fistula was recognized by pus issuing when pressure was applied to the abdomen. Catheterization of the ureters eliminates disease of the kidneys. Radiography is instructive, especially when the contrast suspension is injected into the fistula through a ureteral catheter. In a third case there was a history of adnexitis, but the bladder was of normal aspect and the pus came from one kidney. The prognosis is excellent after removal of the tuberculous adnexa. In one of his cases, extirpation of one tube alone cured the patient. The laparotomy must be followed by drainage into the vagina. The high fistula usually heals spontaneously, with a self-retaining catheter, but in some of the cases on record the fistula was resected.

Calculus in Lumbar Ureter.—Soubeyran removed the calculus through a lumbar incision. It was impacted in the ureter about 5 cm. below the pelvis, and measured 7 by 35 mm. In aseptic conditions, drainage is not necessary. Otherwise he recommends a retention ureteral catheter. In case the kidney is large and inflamed, decapsulation may be advisable, and fixation, if there is a tendency to ptosis.

Bulletin Médical, Paris

37: 971-998 (Aug. 25) 1923

*Normal Tonus of Vegetative Nervous System. D. Daniélopolu.—p. 977.
Examination of Vegetative System in Man. D. Daniélopolu.—p. 980.
Classification of Abnormal Conditions of the Vegetative Nervous System. D. Daniélopolu.—p. 983.
Surgery of Vegetative System. D. Daniélopolu.—p. 988.

The Vegetative Nervous System.—This issue of the *Bulletin* is devoted to Daniélopolu's survey of the vegetative nervous system. His own contributions to the subject have already been reviewed in these columns.

Journal de Chirurgie, Paris

22: *113-224 (Aug.) 1923*

*Mechanical Injury of Brachial Plexus. J. Sénèque.—p. 113.
Intraspinal Anesthesia. Oudard, Jean and Solcard.—p. 134.

Mechanical Injury of Brachial Plexus.—Sénèque's seven cases show the necessity of looking for changes in the transverse process of the seventh cervical vertebra in cases of apparent neuritis of the brachial plexus. A roentgen-ray examination may reveal the cause and lead to a surgical cure.

Journal d'Urologie Médicale et Chirurgicale, Paris

16: 81-176 (Aug.) 1923

Mesothorium in Treatment of Bladder Cancer. F. Legueu et al.—p. 81.
Syphilis of the Bladder. E. F. Chocholka.—p. 85.
*Treatment of Gonorrhea with Permanganate. L. Boulanger.—p. 99.
*Ureosecretory Coefficient. Lanzillotta and Colombet.—p. 109.
Case of Pneumaturia. L. Thévenot and Lebœuf.—p. 117.
Hypernephroma with Milky Ascites. Pervès.—p. 121.

Treatment of Gonorrhea with Permanganate.—Boulanger favors potassium permanganate in the treatment of gonorrhea.

Formula to Express Factors Governing Excretion of Urea.—Lanzillotto and Colombet made fifty-five parallel determinations of Van Slyke's and Ambard's ureosecretory coefficients. They found that both estimations give the same results, the calculation according to Van Slyke being easier. Neither coefficient is an absolute index of the renal function.

Presse Médicale, Paris

31: 769-776 (Sept. 8) 1923

*The Suprarenal Apparatus. A. C. da Costa.—p. 769.
*Syphilitic Meningitis Simulating Malaria. H. Schaeffer.—p. 772.
Tibiotarsal Osteoplastic Arthrodesis. J. M. Vilardell.—p. 773.
Work of the Council on Pharmacy and Chemistry. Cheinisse.—p. 774.

The Suprarenals.—Da Costa summarizes existing knowledge of the embryology and histology of the suprarenals, and propounds several questions which press for solution. He says that the explanations accepted to date are untenable.

Tertiary Syphilitic Meningitis.—A tuberculous origin had been assumed at first, but the Wassermann reaction in the spinal fluid and the favorable course under arsphenamin treatment confirmed the syphilitic nature of the meningitis. The case was peculiar in the ague-like attacks of chills, fever and sweating. These were evidently part of the meningitic syndrome as they disappeared with recovery.

31: 777-788 (Sept. 12) 1923

Surgery of Blood Vessels. J. Goyanes.—p. 777.
Puerperal Infection and Vaginal Hysterectomy. E. Douay.—p. 781.
*Kidney Function in Mental Disease. R. Targowla and M. Badonnel.—p. 782.

Renal Insufficiency in Mental Diseases.—Targowla and Badonnel determined the ureosecretory coefficient and the elimination of phenolsulphonephthalein in patients suffering from mental diseases. Though the two tests disagreed at times, they found that impaired function of the kidneys was frequent, especially in states of confusion, mania and melancholia. Diuretics are without effect, but function becomes normal with amelioration of the mental state. Among twenty-two cases of general paralysis, nineteen had insufficiency of the kidneys.

31: 797-804 (Sept. 19) 1923

*Action of Drugs on Gastric Secretion. T. Hernando.—p. 797.
Deficiencies of Artificial Pneumothorax. Hervé and Roussel—p. 801.
*Liver Function Test. W. Filinski.—p. 803.

Action of Drugs on Gastric Secretion.—Hernando found no essential differences between the gastric secretion after an Ewald test meal, or a 5 per cent. solution of alcohol or of ether, and pure water. Atropin given by mouth or subcutaneously or 0.125 mg. intravenously diminishes the secretion and acidity. If the intravenous injection was increased to 0.25 mg. and given half an hour after the water, it had, instead, a stimulating action. If it was given one hour before the meal, the secretion was diminished. Epinephrin given by mouth or intravenously increased the secretion and acidity. Intramuscular injections had an inhibiting effect.

Liver Function Test.—Filinski gives the patient 100 gm. of glucose or 150 gm. of honey in 300 c.c. of tea, on a fasting stomach, and observes the urine in two hour portions for twelve hours, during which no proteins are taken. In thirty cases of affections of the liver, there was an increase in urobilinogen in the urine after four to ten hours. Among thirty-five controls tested, only five were positive, and even in these, some disturbance of the liver function was probable.

31: 805-812 (Sept. 22) 1923

Malaria in France. L. Rivet.—p. 805.
*Intubation of the Duodenum. Gaston-Durand and Binet.—p. 806.
*Hebephrenia and Arsphenamin. M. Page.—p. 807.
Improved Cystoscopy. L. Phélip.—p. 808.
The Canal in the Heel. A. Raiga.—p. 808.
Pancreas Extract in Treatment of Eczemas of Infants. L. Cheinisse.—p. 811.

Intubation of the Duodenum.—Gaston-Durand and Binet consider radioscopic control the only reliable technic. An alkaline fluid may come from the stomach and an acid from the duodenum.

Hebephrenia and Arsphenamin.—Page had excellent results with arsphenamin treatment in five cases of hebephrenia. Syphilis was present in the antecedents of each of these five patients. Three were girls.

31: 813-824 (Sept. 26) 1923

Relations Between the Ear and the Female Genitals and Endocrines. P. Dalché and M. Labernadie.—p. 813.
Diverticula of the Duodenum. R. Bonneau.—p. 817.
*Vasomotor Line in Gangrene. A. Cosacesco.—p. 819.
Pathogenesis of Tetany. J. Rouillard.—p. 820.

Vasomotor Line in Gangrene.—Cosacesco draws a line on the extremity with a fork. The redness of the vasomotor reaction (line) resulting as well as the speed of its appearance, its continuity, intensity and duration are good indexes of the peripheral circulation as tested at various levels.

Progrès Médical, Paris

421-432 (Aug. 25) 1923

*Cutaneous White Spot. Laignel-Lavastine.—p. 421.
Relations of Epidemic Encephalitis to Paralysis Agitans. C. Achard.—p. 424.

Cutaneous Sympathetic Syndromes and the White Spot.—Laignel-Lavastine reports his observations on the duration of a white spot produced by the pressure of a finger on the skin, and other details. The temperature of the room is important. He described this sign together with Hallion in 1902.

Schweizerische medizinische Wochenschrift, Basel

53: 769-788 (Aug. 16) 1923

*Simplified Sphygmobolography. H. Sahli.—p. 769.
Active Immunization Against Diphtheria. W. Loewenthal.—p. 773.
Radium in Treatment of Lupus of Nasal Mucosa. Baumgartner.—p. 775.
Capillary Circulation in High Altitudes. P. Liebesny.—p. 777. Reply. E. Luscher.—p. 778.
"Heart Shape and Height of Diaphragm." W. Knoll.—p. 778.

Simplified Sphygmobolography.—Sahli publishes a simplified model of his sphygmobolograph.

53: 789-812 (Aug. 23) 1923

*Clinical Hematology. Naegeli.—p. 789.
*Permeability of the Meninges. L. Stern.—p. 792.
Football Contusion of Colon. A. Ritter.—p. 795.
Determination of Lipoids. E. Herzfeld.—p. 797.
*Cardiovascular Disease in Mountain Population. B. Rocco.—p. 798.
Intoxication by Iodin. M. Kesselring.—p. 801.
Thyroid Treatment of Genital Pruritus. A. Bregmann.—p. 801.

Clinical Hematology.—Naegeli sees an important hematologic improvement in the investigation of qualitative changes of the blood corpuscles. The neutrophils are degenerated in sepsis and influenza, while they are intact in epidemic encephalitis and other affections of organs derived from the ectoderm. This speaks against an identity of influenza with epidemic encephalitis. Clinically similar affections, such as anginas for instance, can be differentiated by means of hematology.

Permeability of the Meninges.—Stern prefers the term "hemato-encephalic barrier," to "permeability of the meninges." This barrier protects the central nervous system from exogenous and endogenous poisons. She found with Batelli that the direct introduction of extracts of some endocrine glands may kill the animal. On the other hand, a too strong barrier might prevent the action of necessary hormones. Monakow attributes to this barrier certain forms of mental disease. The resistance of some animals to poisons is due to this barrier. A rabbit can stand subcutaneous injections of atropin, but if it is introduced into the ventricles of the brain, the animal is as intolerant as the dog. Intoxication by certain bacterial poisons (tuberculin, diphtheria toxin) increases the passage of the substances from the blood to the cerebrospinal fluid as long as the fever lasts. Drugs introduced into the lumbar sac rarely reach the ventricles. It is probable that a similar barrier exists between the blood and other organs. The hemato-encephalic barrier allows passage of certain drugs and not of others. Bromin passes, but not iodin; morphin, but not curarin.

Cardiovascular Disease in Mountain Population.—Rocco reports his experiences with heart affections at St. Moritz. A weakness of the left ventricle with dilatation and stasis indicates the necessity for leaving the mountains. Well compensated heart defects cause no disturbance.

53: 813-832 (Aug. 30) 1923

*Insulin Treatment. H. Sahli.—p. 813.
Pancreatic Extracts in Treatment of Diabetes. Guggenheim.—p. 819.
Fight Against Cancer of Female Genital Organs. Beuttner.—p. 823.
Friedmann's Vaccine. C. Fischer.—p. 827.

Insulin Treatment.—Sahli deals especially with Zülzer's results with pancreatic extracts in 1907. They had a good influence on acidosis, though they were toxic. He claims that if the medical world had taken sufficient notice of Zülzer's work, it might not have been necessary to wait sixteen years for insulin. Insulin is a supplement to dietetic treatment. It is essential in coma and in complications of diabetes. In tuberculosis care is necessary since Blum found an unfavorable influence in this complication.

Archivio di Patologia e Clinica Medica, Bologna

2: 337-447 (Aug. 15) 1923

Displacement of Mediastinum from Sclerosis. A. Sega.—p. 337.
Volatile Fatty Acids in Feces. A. Cecchini.—p. 361.
*Hemolysins and Antilysins in Urine. L. Condorelli.—p. 393.
Present Status of Inorganic Heart Murmurs. Sacconaghi.—p. 425.

Hemolysins and Antilysins in Urine.—Condorelli found in human urine a daily excretion of about 0.40 gm. of the esters of cholesterol (chiefly oleate) and 0.70 of fatty acids. The esters of cholesterol have a protective action against hemolysis. The fatty acids could be divided into two fractions, which differ in their hemolytic properties.

Riforma Medica, Naples

39: 817-840 (Aug. 27) 1923

Treatment of Tuberculosis with Calomel Ointment. N. Pane.—p. 817.
*Agglutination by Serums in Glucose Solutions. I. Jacono.—p. 817.
Interlobar Pleurisy. E. Musante.—p. 821.
Liver Cirrhosis and Splenomegaly from Amebic Dysentery. F. Galmozzi.—p. 825.
Syphilis Infection by Bite. F. Viola.—p. 828.
Diagnosis of Perinephritic Abscess. A. Ferrannini.—p. 828.

Agglutination by Serums in Glucose Solutions.—Jacono made emulsions of bacilli in a 4.7 per cent. solution of glucose. He found that such bacilli are agglutinated by normal serum, and that the titer of specific serums is increased. He warns, therefore, against the use of a 4 per cent. glucose solution for blood broth culture mediums.

Anales de la Facultad de Medicina de Montevideo

8: 445-618 (June) 1923

*Tertiary Syphilitic Lesions. J. May.—p. 445.
Albumin Milk in Infant Feeding. R. Berro.—p. 466.
Breathing Exercises. V. Escardo y Anaya.—p. 501.
Treatment of Hyperthyroidism. J. T. Case.—p. 546.
Sarcoma of Upper Jaw. J. Barnhill.—p. 551.
Treatment of Ureteral Calculi by Cytoscopic Manipulations. A. J. Crowell.—p. 554.
Tendon Transplants in the Forearm. R. Kennedy.—p. 558.
Insulin in Treatment of Diabetes. B. Varela Fuentes.—p. 559.
*Aneurysm of Hepatic Artery. J. H. May.—p. 574.
*Treatment of Carbuncle. D. Prat.—p. 576.

Tertiary Syphilitic Lesions.—May gives nineteen illustrations of various cases, saying that 87 per cent. of the women and 50 per cent. of the men in this category were unaware they had syphilis. Some with progressing tertiary lesions in skin or mucous membrane or both gave a negative Wassermann reaction.

Aneurysm of Hepatic Artery.—Two colored plates show the aneurysm, which was a necropsy surprise.

Treatment of Anthrax.—Prat has had a mortality of 18.77 per cent. in his 309 cases of anthrax since 1915. The mortality is much higher when the lesion is on the neck or face. Specific antiserum given intravenously in large doses is the most effective treatment.

Brazil-Medico, Rio de Janeiro

2: 69-88 (Aug. 4) 1923

*Spread of Heart Murmurs. J. A. G. Fróes.—p. 69.
Arsenicals in Treatment of Syphilis. E. Tornaghi.—p. 73.
The Mosquitoes of Province of Rio. C. Pinto.—p. 77.
*Preventive Treatment of Senility. E. Berger.—p. 81.

CURRENT MEDICAL LITERATURE

Revista de la Asoc. Méd. Argentina, Buenos Aires

36: 283-425 (July) 1923

*Removal of Pituitary in Toads. L. Giusti and B. A. Houssay.—p. 283.
Nuttalia Equi in Blood of Horses. A. Bachmann et al.—p. 288.
Results of Vaccination Against Diphtheria. A. Bachmann and J. M. de la Barrera.—p. 290.
*The Cleft Forearm Amputation. G. Bosch Arana.—p. 295.
Congenital Papilloma of Tongue. M. Ruiz Moreno.—p. 298.
*Prosthesis for Reconstruction of the Face. Giovacchini.—p. 312.
*Treatment of Acute and Chronic Rheumatism. S. Libarona Brian.— p.319.
Pseudo Cancers of the Stomach. R. Novaro and L. Bravo Zamora.—p. 332.
*Treatment of Epidemic Encephalitis. Tiburcio Padilla.—p. 344.
*Ileus from Inherited Syphilis. P. Escudero and G. Peco.—p. 348.
Collargol in Infectious Diseases. R. A. Vaccarezza.—p. 355.
*Diplopia in Epidemic Encephalitis. J. M. Obarrio.—p. 371.
Collet's Syndrome. J. C. Montanaro.—p. 399.
Infiltration with Blood as Complication of Elliot's Operation. A. Oyenard.—p. 409.
Skin Implant in Symblepharon. J. M. Jorge and P. Satanowsky.—p. 411.
Amyloid Degeneration of Conjunctiva. E. Adrogue.—p. 417.
Lagleyze-von Hippel Retinitis. R. R. Gil.—p. 422.

Removal of the Pituitary in Toads.—In this third report of research on *Bufo marinus*, the effect on the skin and genital organs of removal of the pituitary was studied. Blackening of the skin and abortions were constant.

The Radio-Ulnar Gripper Method of Amputation.—This method of slitting the forearm to enable articles to be gripped in the long cleft has been described in these columns. Five illustrations show the effective grip thus realized, enabling the subject to feed himself, etc. It is generally called the Krukenberg-Putti forceps method.

Surgical Reconstruction of the Face.—Giovacchini's illustrations demonstrate the advantages of the application of the principles of dental prostheses to aid in reconstruction of the face, and fixation of fractures to avert deformity.

Treatment of Rheumatism.—Libarona Brian states that he has treated with a glycerin extract of thyroid gland tissue fully 700 of his 1,000 patients with rheumatism, and has found it most reliable. If there is no deformity, the outlook is always favorable, regardless of the duration of the rheumatism. He gives no details of the technic beyond stating that a daily subcutaneous injection of 0.06 gm. of the *extracto glicerico de glandotirina* is sufficient. The benefit is pronounced even in a few hours after the first injection.

Treatment of Epidemic Encephalitis.—Padilla comments on the reappearance of this disease in Buenos Aires.

Stenosis of the Rectum from Inherited Syphilis.—A gummatous cellulitis in the pelvis was responsible for the ileus in the man, aged 37, with inherited syphilis. The differential diagnosis was based on the results of treatment as for syphilis, the prostate declining in size, the tumor in the left iliac fossa disappearing, and the rectum and sigmoid becoming normally permeable. The Wassermann test had been constantly negative.

Physiologic Diplopia.—Obarrio explains that diplopia as the patient rouses and wakes in epidemic encephalitis is merely an exaggeration of the physiologic diplopia. It is distinct from paralytic diplopia.

Revista Médica del Uruguay, Montevideo

26: 293-344 (July) 1923

*Puerperal Infection. A. Turenne.—p. 297.
*Parkinsonian Syndrome After Epidemic Encephalitis. C. Brito Foresti.—p. 299.
Action of Bismuth on Syphilis. J. May.—p. 310.

Puerperal Infection.—Turenne injects pituitary extract, fractioned, through the twenty-four hours and applies an icebag to the hypogastrium, and that is all. He declares that the prospects of a cure are inversely proportional to the aggressiveness of our measures, and directly proportional to the respect we show for the spontaneous tendency to organic and functional recuperation.

Parkinsonian Syndrome.—The woman, now aged 32, has presented symptoms of paralysis agitans since 1921. At that time she had an attack of what was supposed to be influenza, but the parkinsonian sequelae stamp it as an unsuspected case of epidemic encephalitis.

26: 345-388 (Aug.) 1923

Pituitary Extract. A. Turenne.—p. 345.
*Early Acute Forms of Neurosyphilis. Nonne.—p. 350.
Fixation of Bismuth in the Tissues. May and Garmendia.—p. 360.
Bismuth in Treatment of Syphilis. J. Etchechury and J. Iglesias Castellanos.—p. 363.

Acute Forms of Neurosyphilis.—Nonne recalls that acute meningitis of syphilitic origin is rare, but he has encountered five cases. The extremely acute meningitis in one young woman developed four months after infection (from a kiss). The pressure in the spinal fluid was 500 mm., but under specific treatment it had returned to normal by the sixth week. The prognosis is generally favorable under specific treatment, but one of his patients in this group, a man aged 48, developed meningitis six months after infection for which he had been given mercury and sixteen injections of arsphenamin. Resumption of specific treatment failed to avert the fatal outcome, and the microscope revealed inflammation of the pia throughout the entire nervous system. In a fifth case the febrile meningitis developed four weeks after infection, but it apparently subsided under neo-arsphenamin treatment. Headache and convulsions returned two months later, and a third time after three months more. The spinal fluid responded to all the tests each time. Necropsy four weeks later revealed a gummatous meningo-encephalitis. The treatment had been apparently thorough in these two men; the three women recovered. Nonne's experience teaches that syphilis should always be considered in every case of acute cerebrospinal meningitis. There were no characteristic features in these cases; they seemed to be ordinary epidemic meningitis.

Revista de Medicina y Cirugía de la Habana, Havana

28: 529-554 (Aug. 10) 1923

*Total Rectosigmoidectomy. R. Menocal.—p. 529.
History of Medicine in Cuba. C. M. Trelles.—p. 532.
*Phototherapy in Dermatology. Sicilia.—p. 535.

Resection of the Rectum.—Menocal was unable to determine the nature of the stenosis of the rectum on account of the profuse suppuration, which involved also the sigmoid flexure. The patient was relieved from all disturbances by extensive rectosigmoidectomy. The segment of bowel resected was hard and fibrous. The stenosis was evidently secondary to syphilitic rectitis.

Phototherapy in Dermatology.—Sicilia defines the three main groups of skin and syphilitic disease which are peculiarly amenable to radiant energy and great heat: itching dermatoses or essential pruritus, affections with torpid secretion and vitality, especially with sluggish metabolism, but above all cases calling for absorption of effusions and suffusions.

28: 555-586 (Aug. 25) 1923

*Treatment of Genital Prolapse. E. Stincer.—p. 555.
Distomatosis of the Liver. W. H. Hoffmann and A. Guerra.—p. 558.
*Epidemic Nephritis? A. Chardiet.—p. 562.

Treatment of Genital Prolapse.—Stincer has been gratified by the satisfactory outcome in five cases in which after subtotal abdominal hysterectomy he applied Presno's method of fastening the stump. Stout catgut is passed diagonally through the stump of the cervix from each side. The two catgut threads cross in the center. The anterior and posterior ends of the catgut are passed through the rectus muscles and their sheaths. When the ends are tied, the stump is supported and is protected by the muscle; no by-effects have been observed.

Is There an Epidemic of Nephritis?—Chardiet is inclined to answer his question in the affirmative as he has encountered so many cases of nephritis recently. Several members of the household were affected at the same time with an acute nephritis for which no special cause could be discovered. He cites Osler's reference to an Italian epidemic of acute primary infectious nephritis, similar to the cases he has observed. In none of the cases had there been recent tonsillitis, scarlet fever or influenza to explain the kidney affection. The nephritis was of the edema type, with notable albuminuria and fever. Anuria was often pronounced from the first day, and uremia was the cause of death. To date he says, only children have been affected.

Deutsche medizinische Wochenschrift, Berlin

49: 1039-1072 (Aug. 10) 1923

Testing "Bayer 205" in Africa. F. K. Kleine and Fischer.—p. 1039.
*Gradation of Specificity. M. Westenhöfer.—p. 1041.
*Nonspecific Agglutination. H. Curschmann.—p. 1045.
*Serotherapy of Cancer. Blumenthal and Halberstaedter.—p. 1046.
Possibilities with Intravital Staining. Seyderhelm and Lampe.—p. 1049.
Protein Therapy in Gynecology. F. Wolff.—p. 1051.
Isodose Charts in Roentgenotherapy. C. Gottlieb.—p. 1054.
Diagnosis of Pregnancy with Phlorizin. Dowig.—p. 1056.
Treatment of Mucosa of Uterus. A. Steiger.—p. 1057.
*Headaches After Lumbar Puncture. A. Calmann.—p. 1058.
Cantani's Diet in Treatment of Tendency to Oxalate Kidney Calculi. J. Fleischer.—p. 1058.
Medicolegal Questions Affecting the Profession. Ebermayer.—p. 1059.

Gradation of Specificity.—Westenhöfer considers a local augmentation of living and not living species-specific substances as the main feature of inflammation. He calls it gradation of specificity (*Artsteigerung*) and explains that it is only a stronger reaction than the necessary physiologic vital process. There is no teleologic view in his theory. It makes no distinction from the biologic standpoint between an inflammation that ends in restitution or in a caseous pneumonia. The gradation of specificity is most pronounced in the mesenchyma, though other tissues may be capable of it likewise (therefore he admits a parenchymatous inflammation.) Immunity is the result of an internal secretion of the mesenchyma. Inflammatory tumors present this gradation of specific character, while real neoplasms signify a loss of it.

Nonspecific Agglutination After Antityphoid Vaccination.—Curschmann finds that many influenza patients show an early rising and quickly passing agglutination of typhoid bacilli (up to 1:400), if they have been vaccinated against typhoid in the last three or four years.

Serotherapy of Cancer.—Blumenthal and Halberstaedter find that no method tested so far can compare with radiotherapy, though even this cannot be considered an unconditional cure. The only hope which such attempts give lies in the fact that they demonstrate that it is sometimes possible to influence malignant tumors—we do not know why some can be influenced while others are resistant.

Headaches After Lumbar Puncture.—Calmann reports a case of typical headache after five unsuccessful attempts to make a lumbar puncture. The contemplated intraspinal anesthesia was consequently abandoned, and the operation was done under general anesthesia. He believes therefore that the headache is caused by meningeal irritation and not by loss of cerebrospinal fluid, as no fluid had been drawn in this case.

49: 1073-1106 (Aug. 17) 1923

Treatment of Diabetes with Insulin. W. Ercklentz.—p. 1073.
*Structure of Polymeric Carbohydrates. P. Karrer.—p. 1074.
*The Blood After Phlorizin. L. Dünner and H. Berkowitz.—p. 1075.
*Movements of Capillaries. Schickler et al.—p. 1077.
Malaria and Blackwater Fever. Kuttner and Loewenberg.—p. 1080.
Psychopathology of Asthma. Schultz and Reichmann.—p. 1081.
*Arsenic in Cerebrospinal Fluid. C. Bruhns and H. Dittrich.—p. 1082.
Goiter in School Children. H. Franck.—p. 1084.
Treatment of Torpid Wounds. F. G. Meyer.—p. 1085.
Trichophytosis in Children. E. Langer and E. Rosenbaum.—p. 1086.
Interval Diagnosis of Epilepsy. L. Focher.—p. 1087.
Habitual Epistaxis. Boenninghaus.—p. 1088.
Chloroform Treatment of Typhoid. A. Eeck.—p. 1089.
Spasmophilia in Nurslings. G. Weyl.—p. 1090.
Wound Infection with Swine Erysipelas. Philippsthal.—p. 1090.
Chemotherapy with Acridin. Bieling.—p. 1090.
Collection and Distribution of Human Milk. O. Hilgenfeldt.—p. 1092.

Structure of Polymeric Carbohydrates.—Karrer reviews the new investigations on the constitution of polymeric carbohydrates. Starch and glycogen seem to be polymers of maltose, not of glucose. There are hardly any essential differences between the two substances.

The Blood After Phlorizin.—Dünner and Berkowitz found leukopenia after injections of phlorizin. Jungmann found that the relative number of erythrocytes decreases likewise. The refraction of the serum remains constant. It is therefore probable that the changes are due to a different distribution of blood corpuscles in the body, analogous to that of a hemoclastic crisis.

Movements of the Most Peripheral Part of Capillaries.—Schickler observed in local hyperemias rhythmic contractions of the capillaries at intervals of about ten seconds.

Arsenic in Cerebrospinal Fluid.—Bruhns and Dittrich found arsenic in the cerebrospinal fluid an hour and a half after intravenous injection of neo-arsphenamin in three only of twenty-five patients. When hypertonic salt solution was injected beforehand, no arsenic was found in any of another series of twenty-five patients.

Klinische Wochenschrift, Berlin

2: 1533-1580 (Aug. 13) 1923

Anaerobic Bacilli. J. Zeissler.—p. 1533.
*Daily Output of Bile. Brugsch and Horsters.—p. 1538.
*Tetany and Alkalosis. E. Freudenberg and P. György.—p. 1539.
Treatment of Diabetic Coma with Insulin and Epinephrin. M. Lauritzen.—p. 1540.
*Gastro-Enterostomy as a Disease. B. O. Pribram.—p. 1542.
*Blocking Nerve in Whooping Cough. C. B. Schroeder.—p. 1545.
Clinical Determination of Diastase. A. Adam.—p. 1548.
*Influence of Bicycle Riding on Size of Heart. H. Herxheimer.—p. 1549.
Differentiation of Circumscribed Shadows in the Apical Region by Swallowing. J. Erdélyi.—p. 1551.
Quantitative Determination of Bilirubin in Urine. E. Schilling.—p. 1552.
"Epinephrin Reaction in Man." F. O. Hess.—p. 1553.
Motor Innervation of Diaphragm. K. Schlaepfer.—p. 1554.
*Complement Fixation in Tuberculosis. G. Seiffert.—p. 1554.
Fusospirillar Phlegmon of the Floor of the Mouth. A. Niedermeyer.—p. 1555.
Sarcoma of Midbrain Simulating Epidemic Encephalitis. Sakorrafos.—p. 1556.
Management of Delivery in Atypical Positions of Fetal Head. A. Seitz.—p. 1556.
Pulmonary Tuberculosis in School Children. W. Stephan.—p. 1559.
Pharmacology of Uterus. Kochmann and de Veer.—p. 1560. Conc'n.

Daily Output of Bile and Means to Influence It.—Brugsch and Horsters call the secretion of bile "choleresis" (analogous to diuresis), and believe that it may partly substitute for insufficient excretion of urine. Hemosiderosis is due to an insufficient excretion of iron by the liver. Phenylcinchoninic acid has a marked "choleretic" action.

Tetany and Alkalosis.—Freudenberg and György consider changes in the ionization of calcium as the main factor in the pathogenesis of tetany. A lowering of the calcium ion level in the blood (not necessarily the total calcium content) may be due to changes in the hydrogen ion concentration (respiratory tetany), bicarbonate concentration (gastric tetany or bicarbonate feeding in insufficient kidneys) or the concentration of phosphate ions (in essential tetany). An acceleration of the respiration of the tissues causes an alkalotic tendency in the metabolism. The potassium and phosphate ions which accelerate breathing are augmented in the blood in tetany, while the depressing calcium ions are decreased. Injections of epinephrin may cause a paradoxic hypoglycemic reaction in alkalosis. The blood sugar is decreased in tetany.

Gastro-Enterostomy as a Disease.—Pribram has seen so many patients with disturbances after retrocolic gastro-enterostomy, that he considers the condition as a morbid entity. The mechanical explanations are not sufficient. It seems that the disturbances are due to functional and reflex changes. A paradoxic slowing down of the evacuation, in spite of the double opening (pylorus and anastomosis) and a hypersecretion after the meal has left the stomach, are frequent symptoms. The operation in ptosis is followed almost regularly by an increase in the disturbances. While an ulcer may heal spontaneously, or under dietetic or protein treatment, there is no help in such cases of gastro-enterostomy except by resecting and restoring simple conditions. Gastro-enterostomy does not prevent the two dangerous complications of ulcers (bleeding and perforation). It should be reserved exclusively for cicatricial stenosis.

Blocking Nerve in Whooping Cough.—Schroeder had bad results with injection of alcohol into the superior laryngeal nerve in children suffering from whooping cough.

Influence of Bicycle Riding on Size of Heart.—Herxheimer found that bicycle riders have larger hearts than men devoted to other sports (including runners and long distance ski runners).

Complement Fixation in Tuberculosis.—Seiffert found that an extract of beeswax prepared in the same way as Boquet and Négre's antigen (combined acetone and methyl alcohol extraction at 75 C.) has properties similar to those of extracts of tubercle bacilli. Lecithin does not seem to be important.

2: 1581-1628 (Aug. 20) 1923

Surgical Treatment of Pulmonary Tuberculosis. G. Baer.—p. 1581.
*Gallbladder Evacuation Reflex. W. Stepp and G. Düttmann.—p. 1587.
*The Peptone Gallbladder Reflex. E. Pribram.—p. 1590.
Sedimentation of Erythrocytes. G. Musa.—p. 1591.
Treatment of Migraine with Phenobarbital. J. Strasburger.—p. 1592.
Contrast Suspension Enema and Insufflation of Colon for Roentgen Examination. A. W. Fischer.—p. 1595.
Digestion Leukocytosis. F. Glaser.—p. 1598.
Calcium and Potassium Content of Blood in Eczema. E. Urbach and F. Simhandl.—p. 1600.
Galvanopalpation. A. Müller.—p. 1602.
"Smallpox in Switzerland." Ascher.—p. 1603.
*Inorganic Substances in Fine Dispersion. W. Heubner.—p. 1603.
Quinin Sensitiveness of Serum and Organ Lipases. Krömeke.—p. 1604.
Surgical Treatment of Hematometra. K. Hellmuth.—p. 1604.
Alveolar Pyorrhea. Present Status. H. Euler.—p. 1605.
Tuberculosis Dispensaries in Clinical Teaching. P. Krause.—p. 1610.

Gallbladder Evacuation Reflex.—Stepp and Düttmann obtained thick bile from the gallbladder by injecting a 5 or 10 per cent. solution of peptone into the duodenum. They observed the contraction of the gallbladder directly on dogs. An oil emulsion, magnesium and sodium sulphate, and certain mineral waters, had similar effects. A spasm of Oddi's muscle was not overcome by atropin, papaverin, or other drugs. Hot dressings applied on the gallbladder region seemed to accomplish the purpose better. The infusion of the peptone solution provoked sometimes a spasm of this muscle.

The Peptone Gallbladder Reflex.—Pribram observed contractions of the gallbladder after duodenal injection of peptone during operations on human subjects.

Action of Inorganic Substances in Fine Dispersion.—Heubner observed a typical intoxication with ascending paralysis in animals after calcium salts. Combination with phosphate enhanced both the antichemotic and the paralyzing action, especially when given as a very fine suspension of calcium phosphate. Other inorganic substances in a fine dispersion had a similar action.

Medizinische Klinik, Berlin

19: 1143-1180 (Aug. 19-26) 1923

*Toxemia of Pregnancy. H. Sellheim.—p. 1143.
*Changes in Leukocyte Count. Glaser and Buschmann.—p. 1144.
*Early Neurosyphilis. H. Pette.—p. 1147.
Results of Supravaginal Amputation and Castration in Tuberculosis. F. Siegert.—p. 1150.
Rare Injuries of Orbit; Two Cases. C. Holste.—p. 1151.
Megacolon. H. Zoepffel.—p. 1152.
Exophthalmic Goiter with Liver Atrophy. Raab and Terplan.—p. 1154.
*Catarrhal and Syphilitic Jaundice. E. Klopstock.—p. 1156.
Tracheotomy and Tuberculosis of Larynx. v. Tóvölgyi.—p. 1157.
Roentgen Treatment of Polycythemia. A. Mosenthal.—p. 1158.
Meinicke's Turbidity Reaction. G. Sato.—p. 1160.
Survey on Physiology and Pathology of Stomach. W. Wolff.—p. 1165.
Urological Survey. Paschkis.—p. 1166.
Experimental Radiologic Research. Holfelder.—p. 1168. Conc'n.

Toxemia of Pregnancy.—Sellheim points out that animals do not suffer from eclampsia. He believes that the reason for its occurrence in women lies in the fact that childbearing is a much greater strain than pregnancy in animals. The upright posture and the size of the brain of the fetus have contributed much to the difficulty of labor. The energy requirements for the development of a human fetus are much greater than for the same weight of an animal. Childbearing is such a strain that it borders on the pathologic. Overeating with proteins is one of the causes why eclampsia is more frequent in towns than in the country or among savages.

Spontaneous Changes in Leukocyte Count.—Glaser and Buschmann found in 55 per cent. of 333 patients spontaneous changes in the number of leukocytes (over 2,000 in 1 c.mm.). If they repeated the count on three different days, they found similar changes in 90 per cent. of their subjects. The changes are less frequently (in 25 per cent.) pronounced in the venous blood. These spontaneous fluctuations account for many findings of so-called digestive leukocytosis and hemoclastic crises.

Early Neurosyphilis.—Pette believes that the early syphilis of the central nervous system has become more frequent since the introduction of arsphenamin. All his patients, except three, had been treated with insufficient doses.

Catarrhal and Syphilitic Jaundice.—Klopstock finds that the speed of sedimentation of blood corpuscles is increased in syphilitic (and infectious) jaundice while it is decreased in simple catarrhal jaundice.

Monatsschrift für Kinderheilkunde, Leipzig

26: 433-544 (Aug.) 1923

Analysis of Buttermilk and Other Sour Milk. C. Meyer.—p. 433.
*Treatment of Dyspepsia. A. Adam.—p. 439.

Treatment of Dyspepsia.—Adam declares that the main aim in treatment of dyspepsia should be the suppression of colon bacilli. He reports good results with the use of milk poor in fat and rich in calcium.

Wiener klinische Wochenschrift, Vienna

36: 603-618 (Aug. 23) 1923

*Action of Iodin on the Thyroid. B. Breitner.—p. 603.
Acute Leukemia and Leukosarcomatosis. D. Scherf.—p. 605.
*Acetonuria in Pregnancy. Pritzi and Lichtmann.—p. 609.
*Tuberculosis of Skin as Systemic Disease. F. Fischl.—p. 611.

Action of Iodin on Thyroid.—Breitner believes that iodin activates the stored colloid in the goiters. In parenchymatous goiters it causes at first an inhibition of the output. The differences in the action of iodin in exophthalmic goiter may be due to a different etiology of the goiter.

Acetonuria in Pregnancy.—Porges and Novak found that acetone appears in the urine of pregnant women in a few hours after starting a diet free from carbohydrates. Pritzi and Lichtmann examined fifty-seven women and had only 10 per cent. of nonconcordant results.

Tuberculosis of Skin as Systemic Disease.—Fischl confirms Löwenstein's theory: The skin acquires a predisposition to tuberculosis, if the first infection occurred in it. Tuberculosis of the skin is rarely associated with a progressive tuberculous affection of other organs.

36: 619-634 (Aug. 30) 1923

*Tangential Percussion. L. Karczag.—p. 619.
Tuberculosis in Infants. K. Barchetti.—p. 622.
Action of Human Serum in Diabetics. R. Latzel.—p. 625.
Treatment of Anxious Conditions with Drugs. L. Stein.—p. 827.
Training of Physicians in the Care of Children. Gottlieb.—p. 628.

Tangential Percussion.—Karczag puts a finger or an ivory rod vertically on the body and taps it parallel to the surface of the skin. The percussion has to be light. The method has given him good results in the sternal region.

Zeitschrift für Kinderheilkunde, Berlin

36: 1-62 (Aug. 22) 1923

Coccygeal Teratoma in the New-Born; Two Cases. L. Heidenhain ar G. B. Gruber.—p. 1.
*Anthropometric Examinations of Adolescents. E. Nobel.—p. 13.
Goiter in Children in Austria. E. Nobel and A. Rosenblüth.—p. 17.
Scurvy and Infection. R. Stern.—p. 32.
Diuresis Test in Infants. W. Lasch.—p. 42.
*Prognosis of Osteogenesis Imperfecta. L. Stecher.—p. 58.

Anthropometric Examinations of Adolescents.—Nobel measured 6,467 adolescents in Vienna in a manner similar to that employed in 1920 by the American relief commission. The figures indicate improved conditions, which he attributes partly to the American relief action.

Prognosis of Osteogenesis Imperfecta.—Stecher shows by three cases that the prognosis with idiopathic osteopsathyrosis is not absolutely bad as to strengthening of the bones.

Zentralblatt für Chirurgie, Leipzig

50: 1313-1344 (Aug. 25) 1923

Pylorectomy in Gastric Ulcer. M. Madlener.—p. 1313.
Nasopharyngeal Fibromas. Birkholz.—p. 1318. Comment. Coenen.—p. 1322.
Echinococcus Disease in Lung. Petrow.—p. 1322.
Vaccine Therapy in Surgery. F. Franke.—p. 1325.
Nitroglycerin in Surgery. E. Rothe.—p. 1328.
*Sedimentation of Erythrocytes in Surgery.

Diagnostic Value of Sedimentation of Red Corpuscles in Surgery.—Rothe points out that accelerated sedimentation of erythrocytes is usually present in oligocythemia and all processes in which the resorption of waste products is increased (all inflammatory processes, fractures, sterile wounds, pregnancy and malignant tumors). In surgery the reaction is important in the field of bone pathology. The method is of great value also for the diagnosis and prognosi, of pulmonary tuberculosis. Normal sedimentation will usually exclude active tuberculosis. It remains to be seen whether it will be possible to make sedimentation findings, like the Wassermann test, relatively specific.

Zentralblatt für Gynäkologie, Leipzig

47: 1361-1392 (Aug. 25) 1923

*Serodiagnosis of Syphilis in Pregnancy. L. Handorn.—p. 1361.
A Rare Dermoid Formation of the Ovary. L. Schoenholz.—p. 1363.
Treatment of Puerperal Sepsis. Conrad.—p. 1374.
Eventration or Relaxatio Diaphragmatica in New-Born. A. Hillejan.—p. 1383.

Serodiagnosis of Syphilis in Pregnancy.— Opitz, Stühmer and Dreier, Esch and Wieloch report that they have often seen positive Wassermann reactions in healthy pregnant women and in puerperants. Handorn had each of seventy-two blood specimens from fifty-one healthy women (pregnant, parturients and puerperants) examined in three different laboratories. In two of the laboratories all the blood specimens gave in every instance completely negative reactions; in one laboratory one specimen gave a weakly positive reaction, and in five instances there was a doubtfully positive reaction. Handorn recommends in doubtful reactions that the clinician endeavor to have blood specimens examined in several different laboratories, unless he is sure that the laboratory that does his work has reached the point of accuracy where nonspecific reactions do not occur.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 557-660 (Aug. 11) 1923

*Blocking the Splanchnic Nerve. Hustinx.—p. 558.
Leukocyte Count Directly After Blood Transfusion. H. L. M. van der Hoff.—p. 571.
*Occupational Eye Disturbances. C. Bakker.—p. 576.
Relative Slowing of Pulse in Sepsis. H. B. Goettsch.—p. 585.
*Bacteriophagy. N. van der Walle.—p. 589.
*The Exudative Diathesis. C. de Lange and A. Lommen.—p. 624.

Blocking the Splanchnic Nerve.—Hustinx adds 119 cases to those on record which brings to 1,375 the number of operations done under anesthesia of the splanchnic nerves in the last two or three years. Four deaths have been recorded. The Braun technic is more certain, but the Kappis technic anesthetizes all viscera above the pelvis. A combination of the two seems to be preferable. Complications on the part of the respiratory organs are reduced to the minimum, but are not entirely done away with. The needle must be fully 14 cm. long, and it is a great improvement to introduce it in a sheath, pushing the tip beyond the sheath only at the deepest point.

Occupational Ocular Disturbances in Manufacture of Artificial Silk.—Bakker's experiments apparently exculpated sulphureted hydrogen as responsible for the superficial keratitis he describes. The smarting, photophobia and pain usually had subsided by the next day, but recurrences were frequent. He is inclined to incriminate the arsenic when ventilation is defective. Only the workers at the spinning machines were affected, and sometimes several were affected at once. The smoke and odor from frankincense strewed on live coals proved an effectual means for studying the air currents in the factory.

Bacteriophagy.— Van der Walle reviews the extensive literature on bacteriophagy which is still, he says, almost as much of a mystery as ever. The bacteriophage seems to be ubiquitous; it has been found in urine, in effusions, blood, Seine and sea water, and in soil. It stands heating to 58 C. for an hour, and contact with phenol in less than 10 per cent. solutions. It does not seem to be affected by emetin, caffein, strychnin or morphin. The results are conflicting in regard to its use in clinical therapeutics. Typhoid bacilli carriers have not been freed of their bacilli even by injection of large amounts of the bacteriophage. The by-effects from injection of the bacteriophage are slight and transient, and we must remember d'Herelle's experience that the toxicity progressively declines; the amount that might kill a rabbit in one day is borne without disturbance a month later.

Emetin in the Exudative Diathesis.— De Lange remarks that pediatricians have been using emetin in the exudative diathesis for some years. It sometimes proves useful. Lommen has found that it may occasionally render good service in rebellious scrofula in children. When it fails, he injects blood from a close relative. He has never witnessed untoward effects.

2: 661-772 (Aug. 18) 1923

*Miliary Tuberculosis. G. O. E. Lignac.—p. 662.
Differences and Resemblances Between Tuberose Sclerosis and Neurofibromatosis. F. S. van Bouwdijk Bastiaanse.—p. 673.
**Medical Practice and Research.* Sir Humphrey *Rolleston.—p. 677.*
Adult Hip Joint with Congenital Dislocation. H. Timmer.—p. 689.

Miliary Tuberculosis.—In the case described by Lignac, the hematogenous chronic miliary tuberculosis was overshadowed by the chronic meningitic symptoms. The diagnosis of the miliary disease was made first from the tubercle in the choroid, and Hartwich has reported recently that general miliary tuberculosis was found in 50 per cent. of all his cases of tubercle in the choroid. In 198 cases of miliary tuberculosis the microscope revealed a tubercle in the choroid in all but 3.

Clinical and Other Methods of Medical Practice and Research.—Rolleston remarks that the difference between the laboratory worker and the practising physician is that the former devotes himself to the complete solution of one problem while the latter attempts to solve a large number of perhaps more difficult problems in the course of the day's work, and often has to be content with but partial explanations. He says that the present era of study of disorders of function "threatens the passing of morbid anatomy. This has certainly occurred in America where basal metabolism is much in favor; for example, in the thirty-eight hospitals of Chicago, 1921, the percentage of necropsies in fatal cases was 15, and only 2.5 per cent. in 852 deaths in ten general hospitals." He concludes his sketch with the statement that as so much depends on the personnel and ideals of those responsible in group medicine, the "diagnostic clinics" do not all appear to have given satisfaction. "There is still a risk that specialization may be undertaken too early in a medical man's career."

2: 861-956 (Sept. 1) 1923

Ring-Shaped Crystalline Lens. M. W. Woerdeman.—p. 862.
*Microtest for Glucose in Body Fluids. B. K. Boom and M. M. G. Woensdregt.—p. 867.
Comparative Sensory and Motor Tests. J. Lubsen.—p. 873.
Associated Malaria and Typhoid. A. van Dongen.—p. 883.
Insulin in Case of Diabetes. G. Berg.—p. 884.
The Old Hospitals of Amsterdam. G. Hellinga.—p. 886.
Practice of Medicine in 1817. A. J. van der Weyde.—p. 902.

Microtest for Glucose in Body Fluids.—Boom and Woensdregt endorse the micromethod they describe which they have found simple, rapid and reliable. The blood is freed from albumin and then reduced with cupric sulphate and compared with a 0.02 per cent. solution of glucose, after treating with the Folin-Wu reagent. They regard the blood sugar range in health, fasting, as 0.1 per cent., from 0.081 to 0.127 per cent.; after a test meal, 0.13 per cent., never more than 0.15 per cent. There was no glycosuria with less than 0.165, while it was always manifest with more than 0.17 per cent. except with chronic nephritis. The average glucose content of the normal cerebrospinal fluid is 0.07, ranging from 0.66 to 0.08 per cent. The technic is a modification of Ponder and Howie's; requires only 0.2 c.c. of blood, and can be applied to a number of patients at a time. The findings in 21 diabetics and 22 nondiabetics are tabulated.

Acta Medica Scandinavica, Stockholm

58: *313-514 (Sept. 6) 1923*

*Lumen of Bronchioli with Varying Air Pressure. C. Sonne.—p. 313.
*Nitrogen Retention and Increased Blood Pressure. E. Kylin.—p. 342.
*Polyarthritis and Salicylate Treatment. Ehrström and Wahlberg.—p. 350.
*Normal Thoraco-Abdominal Reflexes. A. Barkman.—p. 364.
*Threshold of Glycosuria. K. Faber and K. M. Hansen.—p. 372.
The Nervous System in Exophthalmic Goiter. J. Holst.—p. 396.
Size of Lungs in Health. C. Lundsgaard and K. Schierbeck.—p. 470.
Chest Measure and Size of Lungs. Idem.—p. 486.
*Size of Lungs with Mitral Defect. Idem.—p. 495.

Lumen of Bronchioli in Different Air Pressures.—Sonne's tracings show that the bronchioli dilate according to the difference of the pressure within and without the lung. The inspiratory position in an attack of bronchial asthma serves to overcome the contraction of the bronchioli.

Nitrogen Retention and Increased Blood Pressure.—Kylin considers increased blood pressure and nitrogen retention as two entirely independent symptoms. The usually centration of uric acid in the blood in patients with hypertension is a phenomenon parallel to hyperglycemia, and is due to a disturbance of the purin metabolism, not to retention.

Polyarthritis, Heart Disease and Salicylate Treatment.—This article was reviewed May 19, 1923, p. 1496, when published in the local (Helsingfors) journal.

Normal Thoraco-Abdominal Reflexes.—Barkman found that irritation of the fourth to eighth intercostal spaces produces contractions of the first three segments of the abdominal rectus muscle. In many instances isolated contraction of the different segments could be provoked. In healthy subjects the reflexes are never unilateral.

Threshold of Glycosuria and the Errors Involved.—Faber and Hansen demonstrate that the level of blood sugar at which glycosuria appears is fairly constant in the same individual. The carbohydrates allowed should be fractioned in three equal parts daily, as the patient is thus able to tolerate more of them than if they were given in one portion.

Size of Lungs with Mitral Defect.—Lundsgaard and Schierbeck examined the lung capacity in twelve patients with lesions of the mitral valve. They found that the first change is an increase in the residual air. Then the total capacity starts to decrease and later the residual air decreases also.

Hospitalstidende, Copenhagen*

66: 573-588 (Aug. 15) 1923

*Gonococcus Sepsis. E. W. Gøthgen.—p. 573.

Gonococcus Sepsis.—Gøthgen urges prompt bacteriologic examination of the blood in every case of sepsis. In the case described in a man, aged 50, the lymphangitis of the arm, fever, slight jaundice and polyneuritis proved to be a manifestation of gonococcus sepsis. The knee and elbow suppurated by the third week and gonococci were found in the pus. There was a history of gonorrheal urethritis twenty-seven years before, but the genital organs seemed normal during the sepsis except that the prostate was slightly enlarged, and gonococci were found in the secretion after massage. Under passive hyperemia and antigonococcus vaccine the symptoms rapidly subsided. The prognosis in gonococcus sepsis depends mainly on whether the heart is involved or not. Antimeningococcus serum has often proved promptly effective in treatment of gonococcus sepsis. Citron published in 1921 a case with prompt recovery under two injections of 50 c.c. of meningococcus antiserum. Heresen, Barbe and others have reported prompt recovery from gonococcal adnexitis, rheumatism and polyarthritis under antimeningococcus serum. Gøthgen is inclined to accept a long latent gonococcal prostatitis in his case, roused by a recent unusual abuse of alcohol, entailing congestion in the pelvic organs and sweeping away some small thrombus.

66: 589-604 (Aug. 22) 1923

*Adenoid Vegetations. Monrad.—p. 589.

Adenoid Vegetations and the Exudative, Lymphatic Diathesis.—Monrad states that in 150 children with adenoid vegetations in his charge, 1921-1922, all but 16 presented signs of the exudative-lymphatic diathesis. He insists that treatment should be directed to the latter and no attempt should be made to remove the adenoids unless emergency demands, or there is no tendency to the exudative diathesis. In all other cases he advises to wait patiently for a year or two to allow the adenoids to subside spontaneously under dietetic treatment of the diathesis. In 100 of his cases the removal of the adenoids had given only transient relief, if any, the growths promptly recurring. Satisfactory results were realized from tonsillotomy only in 7 of 23 cases.

Ugeskrift for Læger, Copenhagen

85: 541-564 (Aug. 2) 1923

*Otogenous Meningitis. H. Mygind.—p. 541.
Recent Studies of Measles. O. M. Henriques.—p. 545.
*Venereal Disease in Denmark. S. Lomholt.—p. 555.
The Pharmacy Question. Winslow.—p. 560.

Otogenous Meningitis.—Mygind relates that among 150 meningitis cadavers he found 4 in which nothing was discovered to explain the symptoms of otogenous meningitis during life. The meningitis had evidently completely subsided although the secondary changes had proved fatal. In 27 per cent. of 67 fatal cases the lumbar puncture fluid was sterile although bacteria were found postmortem. Polymorphonucleosis was pronounced in all but one case. He always performs craniotomy, especially in the middle cranial fossa. If the dura shows no signs of a deep process, he stops here. Repeated lumbar puncture not only allows oversight of the course of the meningitis but relieves the pressure, and is directly curative. He has also found an antistreptococcus serum useful. Recovery is the rule in otogenous meningitis when the primary focus is not too close and pleocytosis is slight or moderate. After removal of the primary focus, the meningitis subsides. But there is no arresting the meningitis when it develops like the explosion of a powder barrel.

The Control of Venereal Disease in Denmark.—This article was prepared for the Pasteur Centennial Hygiene Exhibition and was reviewed in The Journal, Nov. 3, 1923, p. 1553.

85: 565-580 (Aug. 9) 1923

*Experimental Hermaphroditism. K. Sand.—p. 565.
Case of Gallbladder Ileus. H. Friderichsen.—p. 574.

Experimental Hermaphroditism.—Sand has been conducting research in this line for years. He here describes the results in three series of guinea-pigs, about 1 month, 3 months or 12 months old, in which gonads of the opposite sex had been transplanted. Ovaries transplanted into the testes showed that the sexual characteristics were still transversible, hormone-susceptible, even when puberty was well advanced, as well as in the younger animals. But the experiments alway failed in the adult animal. The mammae in the male ca enlarge and secrete milk merely under the influence of a ovary implanted in the testes. The bisexual characters first gradually changed so that one or the other sex final predominated. This field of experimental hermaphroditism has demonstrated that even the microscope is too coarse an instrument to explain all the facts observed.

85: 581-596 (Aug. 16) 1923

Distribution of Diphtheria Bacilli. M. Christiansen.—p. 581.
*Gonococcal Bursitis. E. Petersen.—p. 586.
*Prophylaxis of Ophthalmia Neonatorum. G. Norrie.—p. 587.

Gonococcal Bursitis.—The bursa in front of the left patella of the young woman suppurated, and gonococci were cultivated from the pus and also from the urethra. Rapid recovery followed incision of the bursa and local treatment of urethra and vagina.

Ophthalmia Neonatorum.—Norrie states that in 1900 the Credé silver nitrate instillation was made compulsory in Denmark. In the twenty years before this, in 13.7 per cent. of the 365 blind inmates of the blind asylum ophthalmia neonatorum was incriminated; in the twenty years since then, only in 8.8 per cent. of the 372 inmates. Since 1905, there have been only 8 cases in all. It is possible that gonococcus infection after delivery may have been responsible for the infection in some of these cases.

85: 597-614 (Aug. 23) 1923

*Medical Examination of Intoxicated Motorists. J. Fog.—p. 597.
Internal Treatment of Glaucoma. S. Sander-Larsen.—p. 603.
Postgraduate Training for Practitioners. S. Alsted.—p. 607. Conc'n, p. 663.

85: 615-628 (Aug. 30) 1923

Diagnosis by Pain Zones. T. B. Wernøe.—p. 615.
Functional Dyspepsia. I. Freuchen.—p. 616.

85: 629-652 (Sept. 6) 1923

Rickets and Tetany. C. Friderichsen.—p. 629.
Tuberculin Treatment of Renal Tuberculosis. C. A. Blume.—p. 630.

Medical Examination of Intoxicated Motorists. — The Danish automobile law of 1921 imposes a penalty for driving while intoxicated, but the courts found that opinions differed as to the degree of culpable intoxication. Fog summarizes his experiences in 50 cases of the kind, listing the aspect; the behavior; orientation in regard to time and place; memory; speech; gait; handwriting (name, age, residence, occupation); pulse; pupils (size and reaction to light); reduced perception of pain; odor of alcohol, and signs of disease (epilepsy, apoplexy). The pulse was accelerated in all the men, even in the 9 who were sober, and he warn that a clumsy gait may be natural in some persons. Th pupils were abnormal in 13 and in one sober man, and th odor of alcohol was strong in 6 men who were quite sobe

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 81, No. 22 Chicago, Illinois December 1, 1923

THE TREATMENT OF URETHRAL STRICTURE BY EXCISION *

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The important subject of the treatment of urethral stricture by excision is given very scant attention in the textbooks of general surgery, and not much more by the authors writing on the specialty of urology.

Resection of strictures as a surgical procedure for effecting a relative cure of permanent duration has never gained great popularity with the surgical world, chiefly because of lack of accurate knowledge of the anatomy of the urethra and the perineum, and of the ever present fear that the removal of any portion of the corpus spongiosum will result in lasting multilation, with prevention of erection, and impotence. There has also been a natural apprehension that after the removal of sections of the canal of considerable extent, there might result a necrosis of the approximated cut ends. For these reasons, reports of resections have usually been confined to the results obtained from the removal of the two sides and the bottom of the tube, and the nodules infiltrating the spongy body and the adjacent tissues, leaving a strip of mucosa, frequently a very narrow one, from which the epithelial lining of the new tube is to be proliferated. A better understanding of the remarkable distribution of the blood supply to the urethra lavishly furnished from the bulbous, cavernous and dorsal branches from the internal pudic arteries, by anterior as well as posterior anastomosis, a knowledge that the tube can be mobilized to almost its entire extent without risk of necrosis, and an acquaintance with the muscles attached to the scrotoperineal portion of the urethra, makes urethrectomy in certain types of stricture a procedure of choice, which I am ready to advocate and demonstrate in this paper.

The trail of the history of this operation, like that of so many of the procedures of modern surgery on pelvic and perineal organs, leads directly to the amphitheater of an American teacher, Dugas,[1] who first reported a case of complete resection of the urethra without any attempt to bring the cut ends together. From time to time in France, Germany, England, Switzerland and America, during the last hundred years, occasionally a report of partial or complete urethrectomy, usually partial, has appeared in the professional journals, but without creating any stir or widespread emulation.

The first surgeon to practice sutures of the separated ends was Heusner, in 1882; but much more ingenuity has been shown in the repeated efforts to supply a mucosa for the tube between these ends by grafts from the skin of the perineum, scrotum or prepuce, a pedicle flap of Dartos, fascial grafts, Thiersch grafts supplied from the mucosa of a prolapsed uterus, transplanted bodily, or the insertion of tubular grafts derived from large veins of other mammals, or of the appendical tube sutured in place over a catheter. With any one or all of these, at times, results more or less successful are obtained, temporarily satisfactory, at least to the surgeons using them. During the last century, the only surgeon who adopted urethrectomy as a method of choice in the treatment of severe strictures of the urethra was Koenig, in whose clinic the rule was, for a time at least, to submit all such cases to resection when the mucosa of the urethra had lost its characteristics as a mucous membrane, and the resected ends of the tube could be brought together. He reported some very interesting results, but apparently failed to realize the advantages afforded in the operation by the extreme mobility of the urethra. Resection has been also extensively practiced at the Necker Hospital by Guyon and his followers, Albarran, Legueu and Marion, but confined to cases that permit the retention of a continuous mucosa, and it is applicable only to cases not requiring the loss of more than from 2.5 to 3 cm. on the sides and floor of the canal. A very satisfactory technic was worked out by this school for the repair of such a partial resection.[2] A second operation devised for the same purpose and applicable only to very narrow and incomplete strictures at the junction of the membranous and bulbar portions of the canal is that of Stern.[3] Ingenious in its conception and surgical in its execution, it is meant to deal with cases in which there is no cicatricial destruction of the corpus spongiosum.

For the radical removal of all of the stricture from face to face, anteroposteriorly, together with the entire spongy body within these limits, use may be made of (1) the Albarran technic; (2) the technic of Hamilton Russell of Melbourne, and (3) the technic which I developed during my years of active service in the Los Angeles County Hospital, and have since applied, from time to time, in my private practice, with most gratifying results.

In any of these operations, whether the incomplete resections of the Necker school or of Sterns, or the radical procedures of Albarran, of Russell or that which I have adopted, a satisfactory field for the operation is to be obtained only by having the patient in an exaggerated lithotomy position, using an inverted Y-shaped incision for the obtaining of a complete

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Dugas: South. M. J., 1836.

[2] Greene and Brooks: Diseases of the Genito-Urinary [illegible]ans and Kidneys, Ed. 3, Philadelphia, W. B. Saunders C[illegible], 19[illegible] [illegible]52-453.

[3] Stern, Maximilian: Plastic Operation [illegible]ethral Stricture, J. A. M. A. 74:85 (Jan. 10) 1[illegible]

exposure of the musculature of the perineum and the scrotoperineal urethra, so that the entire structure of the corpus spongiosum, from the urogenital diaphragm to a point as far forward in the phallic urethra as may be found necessary, is laid bare, and so separated from its attached structures that the diseased and strictured portion may be freely removed in its entirety, and the parts of the tube beyond these limits mobilized so completely that they may be united by suture without tension. In the presence of a case deemed suitable for this radical procedure, a preceding suprapubic drainage should be instituted and maintained for a time sufficient to demonstrate whether, as so often happens, the infiltration in the tissues about the urethra, relieved of the continuous irritating influence of the decomposed urine, may not gradually soften and disappear to the extent that the stricture deemed impassable readily becomes easily amenable to dilation. If, after about two weeks, this change does not take place, resection of the stricture becomes the procedure of choice.

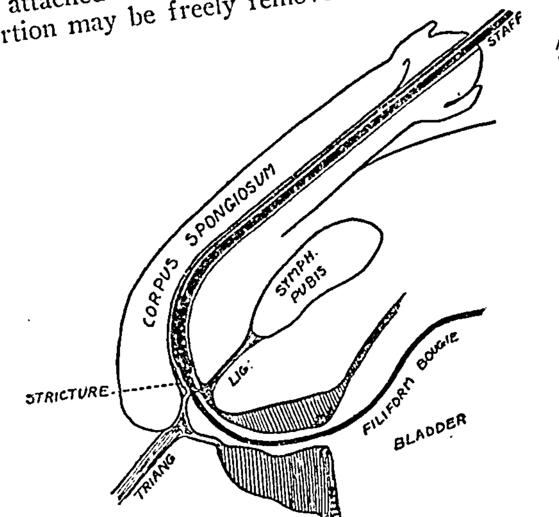

Fig. 1.—Common position of strictures requiring resection (schematic; reproduced from Maxmilian Stern).

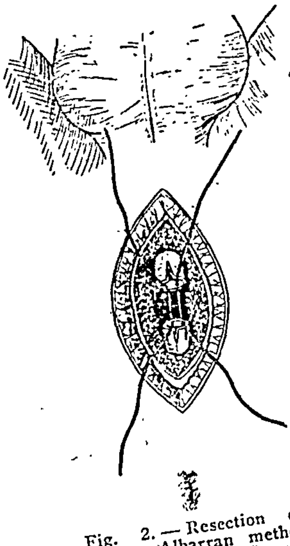

Fig. 2.—Resection of the urethra—Albarran method (reproduced from Green and Brooks: Diseases of the Genito-Urinary Organs and Kidneys).

Preparation for the exposure of the stricture should include a number of delicate sharp knives, both for incision and dissection, small sharp scissors, straight and curved, delicate needles, sharp and round pointed, which will hold No. 0 chromicized catgut, fine pure silver lacrimal probes, and a dozen fine straight and curved artery forceps—in fact, the instruments necessary are those which should be found in the kit of an eye surgeon. In addition, one requires a fine grooved director, a small straight gorget, a Wheelhouse staff, to cut on for opening the urethra anterior to the stricture if no filiform can be passed as a guide, and a Gouley tunneled staff of silver, No. 8 or 10, if a filiform can be made to penetrate the stricture, a retrograde staff on which to open the urethra behind the stricture and the usual bifid and other retractors necessary in exposing the apex of the prostate, as in Young's perineal prostatectomy.

I know of nothing in surgery that is quite so disgusting as to see an operator messing at a stricture with unsuitable and inadequate tools, destroying, by clownish gestures, whatever favorable chances the subject may have of recovery from his terrible disease. If no filiform or guide may be made to penetrate the stricture, its remaining mucous channel may be mapped out by staining its course with the solution of a dye, injected under pressure through the urethra. For more than thirty years, in the Los Angeles County Hospital, I have used methylene blue for this purpose, for which I claim no priority, as I think I received the idea from my teacher, Prof. Robert Ultzmann, in Vienna.

The preliminary dissection finished, the central tendon of the perineum severed close to the bulb, and the anterior layer of the triangular ligament well exposed, the ischiocavernous muscles should be pushed aside, and the bulbocavernous tendon split along the white line at its center to the point at which it joins the insertion of the tendons of the superficial transverse perineal muscles at the root of the bulb. These are to be clamped and severed close to their insertion into the spongy body, exposing the urethra, which is then easily freed from its fascial and muscular coverings and its attachments to the cavernous bodies, chiefly by blunt dissection with gauze, straight scissors and knife handle, as far forward and backward as required to get past the limits of obstruction and expose healthy mucosa in opening the canal. These steps should be conducted with patience and gentleness, for it is essential to do no gross damage to the arterial or nerve supply.

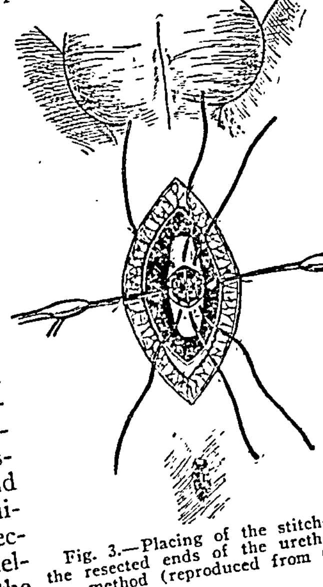

Fig. 3.—Placing of the stitches uniting the resected ends of the urethra—Albarran method (reproduced from Green and Brooks).

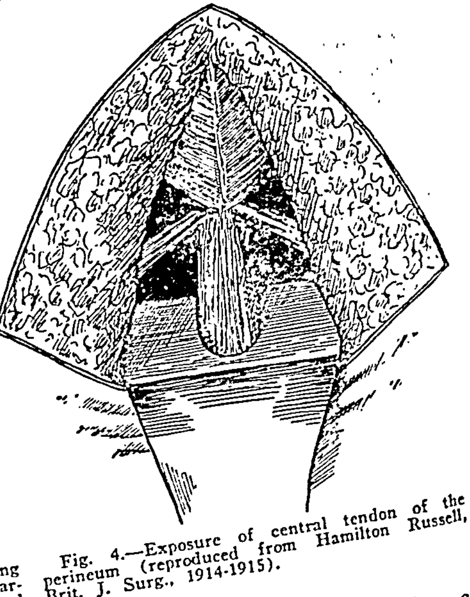

Fig. 4.—Exposure of central tendon of the perineum (reproduced from Hamilton Russell, Brit. J. Surg., 1914-1915).

If a filiform guide can be passed, the urethra can be opened in the strictured portion on the Gouley catheter staff which has been threaded on it, and its course followed anteriorly and posteriorly until healthy elastic mucosa is encountered. If no guide can be introduced, a small quantity of a solution of methylene blue may be injected down the canal under moderate pressure and the canal opened directly in front of the palpable limits of the stricture on a Wheelhouse staff, when, after the introduction of two traction sutures, through the entire urethral walls on each side, including the mucosa, by the aid of a good light, the sclerosed and contracted canal may be searched for by fine silver probes, gently and patiently, following the stained epithelium, and with sharp, fine knives and scissors gradually laid bare to its posterior limits.

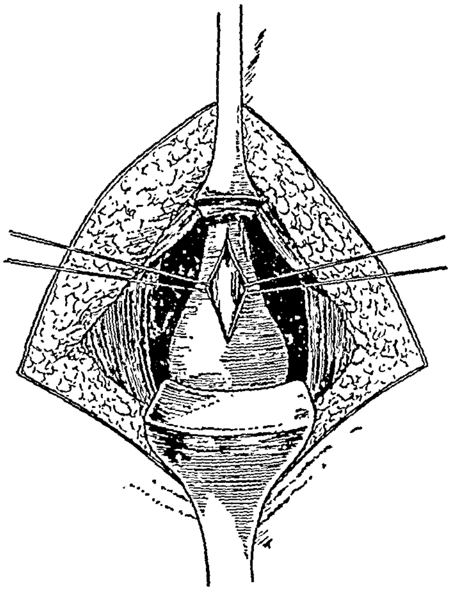
Fig. 5.—Opening of the urethra close to the stricture (reproduced from Hamilton Russell).

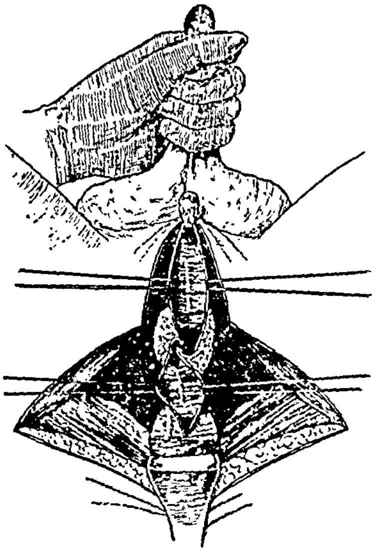
Fig. 6.—Urethral tissues to be resected (reproduced from Hamilton Russell).

If the track of the stricture is lost or appears to be totally obliterated, the urethra is to be opened on a retrograde staff in front of the anterior layer of the triangular ligament and as close to the stricture as possible, the traction sutures inserted in the urethral walls and the search for the canal conducted forward with the silver probe, filiforms or silk bougies. When it is found and laid open from one extremity to the other, the operator is then ready to resect, whether the procedure adopted is that of Albarran, applicable only to contractures in the tube not exceeding 2.5 cm. in length, that of Russell or that which I have described, in which the only limit is that in which the two ends may be brought together by sutures without excessive tension, and which has actually in experience amounted to as much as 8 or 9 cm. The line for excision must be made in healthy mucosa and beyond the sclerosed infiltration of the spongy body in which the urethra lies; thus severed, fore and aft, the sclerosed canal, with its portion of the spongy body and the surrounding nodular tissue, is to be dissected out from its bed in its entirety, avoiding injury to the corpora cavernosa and to the internal pudic artery and its larger branches. Ordinarily, the hemorrhage will be only moderate, for the inflammatory changes, long continued, have so cicatrized the reticulated normal structure of the bulb that its spongy nature is lost. In removing the fleshy flap from beneath the arch of the pubes, one should bear in mind the close proximity of the plexus of Santorini.

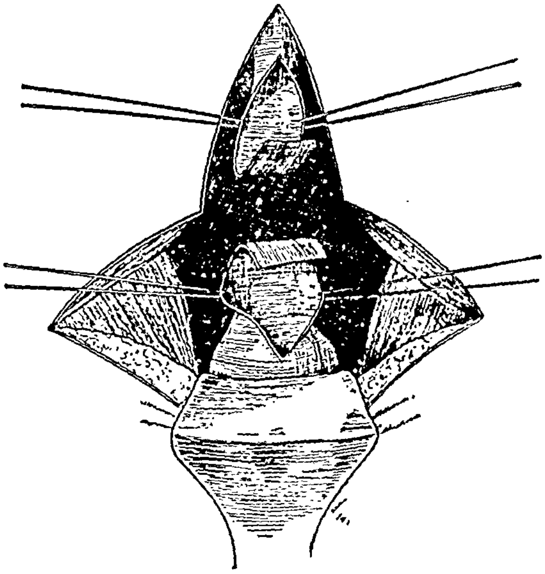
Fig. 7.—Undercutting of urethral tissues after resection (reproduced from Hamilton Russell).

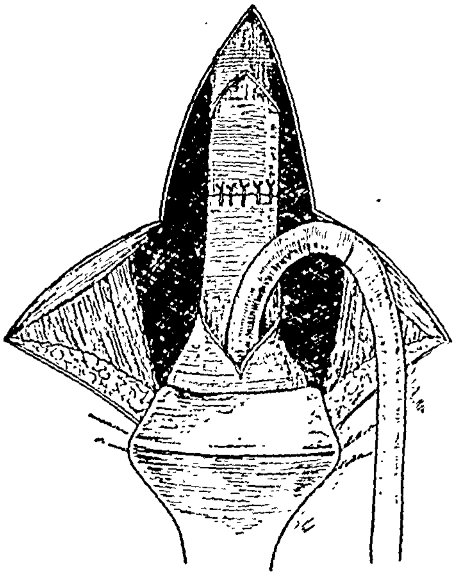
Fig. 8.—Uniting of the undercut urethral tissues by five sutures, and placing of a rubber drain in the proximal portion of the urethra (reproduced from Hamilton Russell).

The section of the tube removed, the appearance of the structures in the perineal field is not encouraging; but because of the great elasticity of the urethra, its great mobility and its rich blood supply, marvels can be accomplished in its repair, by either the Russell procedure or mine. In the operation of Russell, in which the primary incisions into the healthy canal have been made, both anteriorly and posteriorly a considerable distance from the face of the stricture, after the excision, a flat strip of mucous membrane is left in the field, which he proceeds to extend and enlarge by slitting the canal farther on its ventral surface and then undercutting both strips of the ribband until enough is mobilized so that the two squarely cut ends can be sewed together without tension by five catgut sutures passed so that the knots are tied on tl uco The surface of the wound is protected f contact by means of a catheter inserte membranous urethra at the apex of the prostate, and the reconstruction of the canal is left to itself, depending on the fact that on account of the peculiar structure of the perineum, the sides of the urethra will roll in and it will eventually resume its normal tubular form, if a continuous mucosa is secured on its dorsal aspect, and contamination or infection by urine is not permitted during the first few days following operation.

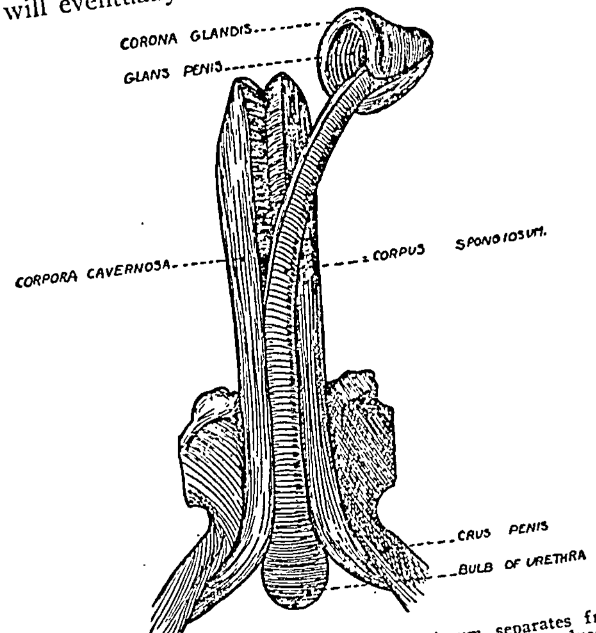

Fig. 9.—Ease with which the corpus spongiosum separates from the corpora cavernosa; mobility of the corpus spongiosum (reproduced from Gray's Anatomy).

In my operation, the intention is to restore the tube by approximating its cut ends in their entire circumference, and I find that this is best achieved not by the laying of a circular stitch, such as was done by Mayo Robson with success after the excision of an annular stricture where the loss of structure was not more than ¼ inch, and as was the practice of König, but by slitting the urethra and spongy body both anteriorly and posteriorly into three strips, or ribbands, one posterior and two lateral, using great care not to mangle the tissues and to have clean incisions; for this purpose, one must have very sharp, straight eye scissors. The length of these ribbands will vary with the necessities of the case, but they must be long enough to permit the placing, in the posterior one, of three sutures of No. 0 chromicized catgut, which has been soaked in hot salt solution previously to render it flexible, and each threaded on two fine, sharp needles and inserted about 1 cm. from the cut edge of the tube, passed from within, out, and tied with the knots outside the lumen of the canal, the central first. Before the knots are tied, the cut edges are to be approximated by means of traction sutures of silk inserted in the mobilized ends of the urethral body just beyond those parts which have been converted into the ribbands. If they do not join easily under moderate traction, the tube may be mobilized still further, if necessary, the skin slit being extended as far as the frenum, and the spongy body pried out of its bed, where it lies mortised between the corpora cavernosa, and the posterior segment of the tube may be loosened by careful blunt dissection, after the attachments of the superficial transverse perineal muscles to the bulb have been severed, as far as the anterior layer of the triangular ligament.

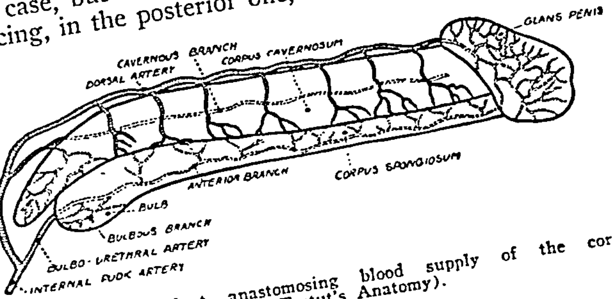

Fig. 10.—Abundant anastomosing blood supply of the corpus spongiosum (reproduced from Testut's Anatomy).

When it is found that the cut edges can be brought together by moderate traction, both sections of the tube are then anchored in this position to the bed from which the cicatrized urethral tissues have been removed, by means of sutures of No. 0 chromicized catgut, previously softened, using new, round-pointed needles of appropriate size. These stay sutures must be inserted into firm tissues; they always penetrate the sheath of the spongy body and may, if necessary, be inserted into, but not through, the sheaths of the cavernous bodies. As many of these sutures may be employed as may, in the judgment of the operator, be necessary to retain the urethra in its new position and effectively prevent any strain being made on the line of suture of the ribbands.

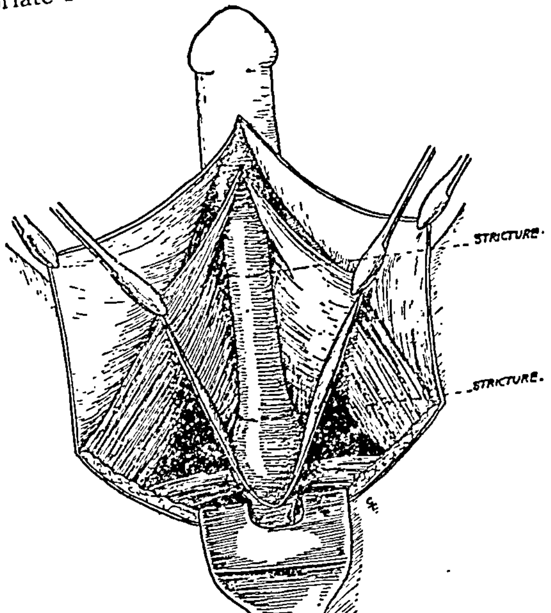

Fig. 11.—Method of exposing and mobilizing the stricture tissues before resection.

The three sutures in the dorsal ribband having been tied, a soft rubber catheter is passed from the meatus to the triagular ligament and secured there by one suture of No. 1 plain catgut so that it may not be displaced accidentally or intentionally before the fifth or sixth day, and then the lateral ribbands are sewed together in a like manner, first from end to end with No. 00 chromicized, and then united from side to side by one or more fine sutures of plain gut, after which the disturbed and separated bulbo-urethra muscles are replaced, the cut ends of the transverse perineal muscles repaired and the ischiocavernous muscles which have been retracted, brought forward and attached, by a few plain catgut sutures to the bulbocavernous muscle mass, to cover better the deep perineal nerves and arteries and the base of the cavernous bodies.

The cellular tissues lying between the skin and the muscle mass of the urethra are repaired and brought together by a few plain catgut sutures so as to obliterate all dead spaces. The skin is repaired with black silk or fine flexible silkworm sutures, but no attempt is to be made to close completely the perineal wound unless the surgeon desires to lose his time and jeopardize the welfare of his patient. The foes that may prevent success are hematoma and infection; neither will occur if a cigaret drain is kept in contact with the surface of the point of excision for a few days, and there need be no hurry about removing it, for oozing serum, liquefying catgut, and staphylococci in a perineal wound make a bad combination, especially in the presence of accidental soiling by infected urine, if drainage is interfered with. So important is this, that I am convinced that the interests of the patient would be better conserved if the entire perineal wound were left open and packed than if an attempt were made to close it without drainage.

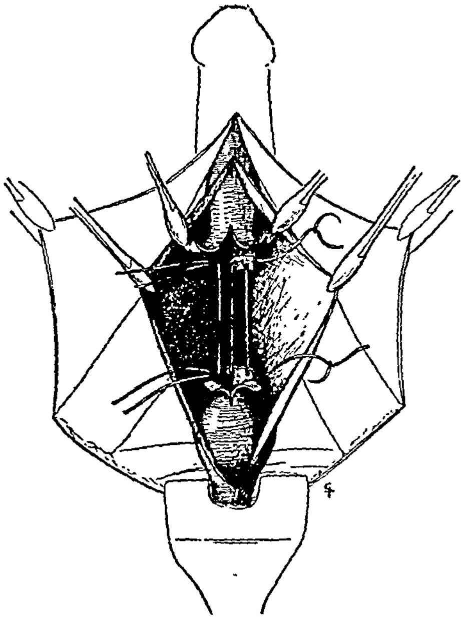

Fig. 12.—Preparation of the flaps of the urethra and the placing of the stitches in the flaps so as to bring the knots on the outside of the new urethra.

Before the ends of the canal are united, the membranous and prostatic urethra should be carefully examined for stenosis. If a stricture is found in the membranous urethra, it should be severed by a Blizzard knife. If contracture of the bladder neck exists, it should be dealt with by the MacGowan-Parker punch. When the excised section of the tube has been very long, when united, it will be noticed that there may be considerable ventral curvature of the penis. This need cause no anxiety; time will restore it to its natural shape. I have always kept the cetheter retained in place in the canal for from six to ten days (this precaution is not taken to assist the uniting of the ends of the ribbands, but to prevent the accidental adhesion of the granulations in the line of union that may not be perfectly covered with the mucosa). Perhaps the wounded surfaces would unite and a tube be formed just as well without it, but my ultimate results have been exceptionally good, and I desire to take no chances.

There is often considerable oozing from the wound for the first twenty-four hours; hence I prefer to use large dressings of plain gauze, moistened with physiologic sodium chloroid or Thiersch solution applied hot and changed frequently and kept against the perineal wound surface under pressure; subsequently, I prefer that the dressings next the skin be plain gauze dipped in melted petrolatum, which so fills the meshes that the dressings will not adhere. The urethral surfaces may unite perfectly and the wound close in two weeks, but this is not to be expected. At the end of the second week, the suprapubic de Pezzer drain is dispensed with; then, usually, the suprapubic wound closes in a few days and normal urination is established. If a fistula persists in the perineum, after the third week, it is probably due to the irritation of an unliquefied and unabsorbed piece of the chromicized gut, and one must wait until the knot is loosened and comes away of itself. A sound, not a large y 20 F., may be cautiously passed on t and then at intervals of a week caliber, but no attempt should

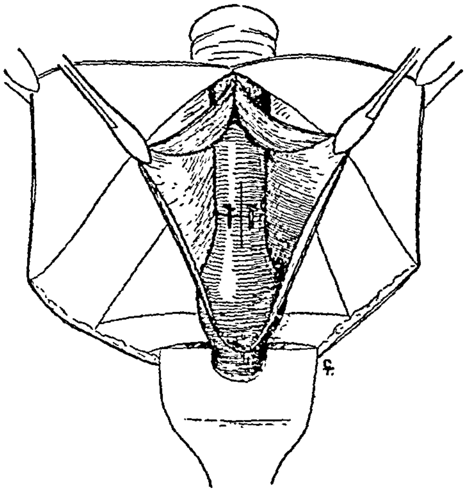

Fig. 13.—Appearance of urethra structures after the resected ends are brought together.

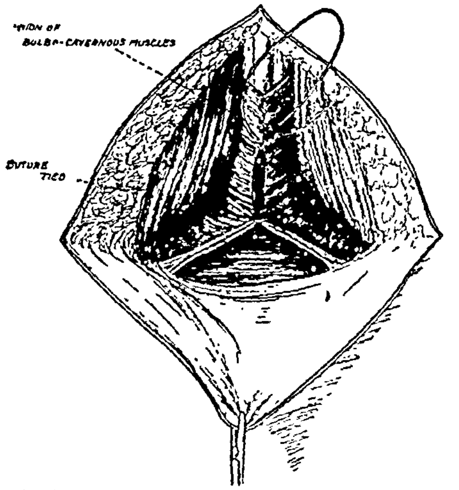

Fig. 14.—Replacement of the muscle tissues in their proper position before the closure of the perineal wound (reproduced from Maxmilian Stern).

that put the canal on a stretch or distend it; the idea is to secure a canal that will be permanent and allow the patient to pass urine easily, and the use of any violence to the line of sutures may easily produce a rupture of the urethral tissues and defeat the project. If sounds do not pass easily, but the patient voids a full, comfortable stream, the operator should not worry—the canal probably has a kink in a part of the line of healing, and the channel is not continuously straight. The patient should be let alone. So far as he is concerned, the cure is a satisfactory one.

It is very hard to get perfect follow-up histories on difficult stricture cases from patients, especially those operated on in public institutions; relieved and elated, they hide out, and receive no treatment until the stream again becomes slow or small, or retention takes place. Many of these on whom I have performed urethral resections disappeared entirely within a few weeks or a few months, but there were no positive failures. One of my earliest patients, operated on about twenty-five years ago, after an interval of approximately twenty years, reported that he had never had any more trouble after I "cut his strictures out." I have now several under observation who have been operated on in recent years. I had the opportunity of examining one patient's canal with the cysto-urethroscope and through the urethroscopic tube, after the perfect healing of the wound, whose history is given here. This man's report, coming three years after a complete resection of more than 6 cm. of the bulbar urethra, states that he is sexually potent, and "just fine."

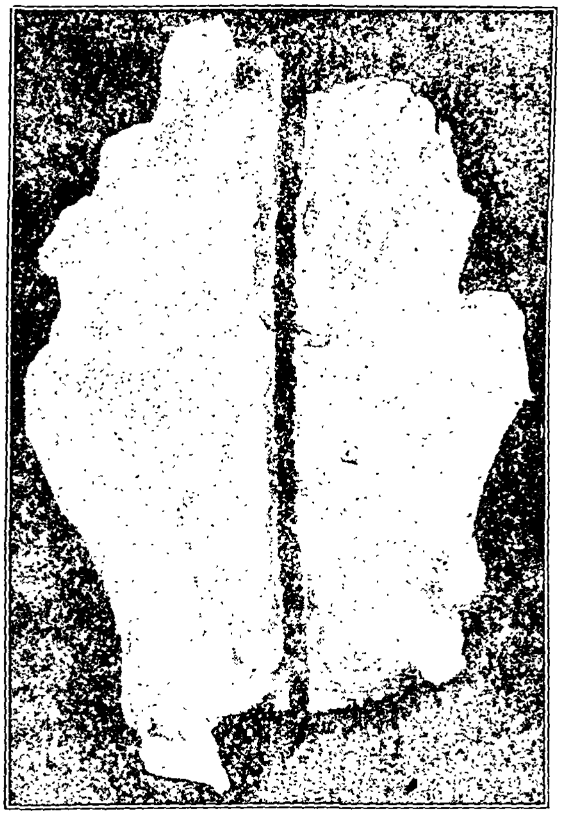

Fig. 15.—Resected portion of a urethra, 8 cm. in length, in which a satisfactory union and a patent urethra were obtained. The dark object in the center of the field is a piece of ordinary green wrapping twine, which quite fills the lumen of the sclerosed urethra.

REPORT OF CASE

I. G., a man, aged 43, a carpenter, a resident of Pine Knot, Calif., referred to me by Dr. Howard Hill of Redlands, Dec. 31, 1919, fell astride a floor beam at the camp where he was working, October 13, and ruptured the urethra. The ends were found by Dr. Hill, and with considerable difficulty a No. 15 soft rubber catheter was passed from the meatus to the bladder, the wound in the urethra repaired, and the external incision closed with drainage. After thirteen days, the catheter was removed; when urinating, the patient passed a good stream, but no instrument larger than a No. 10 F. could be inserted into the bladder. November 19, he had an attack of retention of urine; under incomplete anesthesia, sounds were passed, following which he voided freely until November 27, when he had retention again, which relaxed under heat and morphin. From then until he came to me, December 31, he passed urine in a thin, small stream, without pain.

A hard infiltration was felt at the site of the rupture in the urethra; the prostate was smooth and normal in size. Under local anesthesia, I passed a filiform, and over this, threaded a No. 8 silver Gouley staff catheter, through which the bladder was emptied and the filiform tied in. By continuous dilation with filiforms and silk bougies until Jan. 8, 1920, we secured a canal that would admit the passage of a No. 18 cystoscope. An examination of the bladder showed edema and congestion of the trigon, the usual small hemorrhagic spots from the presence of the bougies, some very fine gravel, and a marked trabeculation of the mucosa which did not disappear on distention. The mucosa of the posterior urethra was abraded and edematous. Examination of the anterior urethra with a No. 22 Koch urethroscope demonstrated a circular stricture of the perineal urethra with no normal mucous membrane about it. The patient was informed that resection of the urethra was necessary; and, having given his consent thereto, a preliminary suprapubic cystotomy was done, January 10.

January 13, we resected a little more than 5 cm. of the bulbar urethra, removing it in its entirety, floor, roof and sides, as well as dissecting out all of the surrounding scar tissue that had resulted from the rupture of October 13. In the removal of the stricture and the restoration of the canal, we used my own method, which is the subject of this report.

January 27, the suprapubic de Pezzer drain was found to be sanded; it was removed and replaced by a new one, which was retained until February 4.

January 29, I passed a No. 19 F. steel sound with ease and followed it with a No. 18 soft rubber catheter so as to irrigate the bladder and the urinary tract from below.

March 1, I found a small abscess in the tissues of the perineum that did not communicate with the urethra; this was drained and gave us no further trouble.

February 5, he was passing one third of the urine by the meatus.

February 20, all of the urine came by way of the meatus.

February 20, the wound of the skin was treated and a No. 27 F. steel sound passed without any obstruction. He was kept under observation until April 1. At that time a No. 28 F. steel sound entered the bladder by its own weight; the patient passed a full and copious stream without any dribbling at the finish, at normal intervals. By the cysto-urethoscope and the open urethroscope we could detect no definite scar tissue. The patient was dismissed.

I have heard from this man twice since, first in March, 1921, without my solicitation; then April 26, 1923, in reply to a follow-up letter. Both letters show that total resection of the bulboperineal spongy body for stricture is feasible without danger of loss of sexual potency and with the result of a permanent cure of the strictures.

ABSTRACT OF DISCUSSION

Dr. Robert V. Day, Los Angeles: I have followed up three or four of the patients Dr. MacGowan operated on, and I was amazed at the results. They were just as he has stated this morning.

Health Education and Community Uplift.—If I had the problem of elevating the general moral and mental tone of a backward community I would seek the services of the public health worker, the sanitarian and the personal physician even before those of the teacher. Health education must go forward hand in hand with that of the mind.—Ray Lyman Wilbur, Stanford University, Calif.: *School and Society.*

PREMATURE PRESBYOPIA *

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In all the cases in this series, the eyes were refracted with a mydriatic. Later a postmydriatic examination was made; the majority of the patients had the extra-ocular muscles tested, and all had an ophthalmoscopic examination of the fundus. Seventeen had also the near point of accommodation and convergence, depth perception, ocular fields and color vision taken separately with each eye. The conclusions reached were that:

1. Many conditions of the eye cause uncorrectable poorness of near vision besides refractive errors.
2. There is a relation between hyperopia and premature presbyopia.
3. Other conditions besides refractive errors occur in premature presbyopia. The contracted fields, as a rule, were associated with general infections, such as tuberculosis and syphilis, and focal infections, as tonsillitis. Color blindness occurred in one or both eyes.
4. Many had muscular weakness. Exophoria was associated with good depth perception. Esophoria and orthophoria in cases of high latent hyperopia occurred with poor depth perception.
5. General infections, focal infections, and cardiorenal, neuropsychiatric and endonasal abnormalities were found.

Presbyopia is that condition of the eyes in which there is a lowered amount of accommodation, necessitating the addition of plus lenses to the distance correction for near use. The condition is usually accompanied by increased near point of accommodation and convergence. It usually occurs at the age of 45 or later. The cases referred to as premature occur in persons ranging in age from 25 to 40, averaging 31½ years. Presbyopia may occur in one or both eyes. When occurring in one eye, the near vision correction sometimes cannot be worn in comfort. Sixty per cent. of the patients required two pairs of glasses; 17 per cent. used bifocals; 17 per cent. used the near vision correction only; 6 per cent. with monocular presbyopia used the distance correction only. There is a weakness of accommodation, usually in persons with hyperopia having a near vision of Jaeger 4 to 8, occasionally as high as Jaeger 10 in one eye; but in these cases the correction for distance is sufficient to give Jaeger 1 or 2.

Conditions among my patients which have caused a poorness of near vision which could not be corrected were: amblyopia from simple optic atrophy, syphilitic papilledema, macular retinochoroiditis, central scotoma associated with sinusitis, detached retina, optic atrophy secondary to cerebral concussion, rupture of the globe from indirect violence, and syphilitic paralysis of accommodation.

The majority of these patients had hyperopia; thirteen had less than plus 2 sphere or cylinder; seven had above plus 2 sphere or cylinder; seven had myopia ranging from minus 50 sphere or cylinder to a minus 4 cylinder; one had myopia in one eye with hyperopia in the other; another had hyperopia in one eye with mixed astigmatism in the other.

In Case 1 there were recurrent attacks of parenchymatous keratitis in the right eye causing a large opacity in the center of the cornea. In the left eye there had been iridocyclitis, causing an iridodialysis; also there was retinochoroiditis. The patient was recommended for blind training. An optical iridectomy was done on the right eye, which gave the patient sufficient vision to undertake training as an automombile mechanic. In Case 10 there was a chronic dacryocystitis in the left eye, which cleared up after rapid dilation of the tear-duct (by Dr. S. Lewis Ziegler's method). Later a pterygium on the same side was buried. In Case 16 the patient had tonsillitis while overseas, and had no medical attention for two weeks. He said that he almost lost his vision, but that it improved 50 per cent. after the removal of the tonsils. Fundus examination showed a large cherry-red spot in the macular region of each eye. He also had a contracted field of vision in both eyes. There were three cases with contracted ocular fields associated with pulmonary tuberculosis. One patient had arrested retinochoroiditis. Two of these patients had both eyes affected; one had this condition in the right eye alone. There were two cases of syphilis with contracted fields, one of which improved under treatment. The other patient who had an Argyll Robertson pupillary reaction in both eyes, did not improve. There was another patient with contracted fields who had a negative Wassermann reaction of the spinal fluid, but which did not entirely disprove syphilis. There was one other arrested case of iridocyclitis. There were two cases of color blindness in both eyes (eyes examined separately), and one case in which there was good color vision in the left eye and poor in the right eye.

There were ten cases of exophoria ranging from 1 to 4 degrees, three of esophoria from 1 to 3.5 degrees, and eleven cases of orthophoria; one patient with marked internal squint could not be tested, and another did not have sufficient intelligence. Three were not examined for muscles. There were four cases of hyperphoria. There were two cases of divergent squint associated with exophoria, and one case of internal alternating squint with esophoria. Seven patients with exophoria were examined for depth perception; six had less than 2 cm.; the seventh had 4.23 cm. but had optic atrophy in both eyes, due to pulmonary tuberculosis. Those who had internal alternating squint had no depth of perception; all positions seemed the same. In exophoria or orthophoria with high latent hyperopia there was poor depth perception.

In this series there were five patients with pulmonary tuberculosis, and two with chronic myocarditis; one died of acute dilatation of the heart; there were one case of chronic interstitial nephritis, two of syphilis, four of neurasthenia, and one of hysteria. With endonasal conditions, five patients had a deflected septum; two had submucous resections done with no improvement to the presbyopia; one had empyema of the antrum of Highmore. The majority of these patients—twenty of the twenty-nine—were ex-service men examined by the United States Veterans' Bureau. The premature aging of the eyes occurred secondary to wounds, illness and strain incidental to the service in the last war.

SUMMARY

There is a relationship between hyperopia and premature presbyopia; occurrence of uncorrectable poor near vision; contracted ocular fields associated with general and focal infections; [illegible] ocu[illegible]nd bin[illegible] [illegible]lor

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Table 1.—*Findings in Cases 1-17: Near Point of Accommodation and Convergence, Depth Perception, Muscle Balance, Refraction, Fields, Color Vision and Extra-Ocular Conditions*

No.	Near Point O. D.	Near Point O. S.	Near Point of Conv.	Depth Perception, Cm.	Distance Vision		Near Vision		Mydriatic O. D.	Vision with Correction	Mydriatic O. S.	Vision with Correction	Age
					O. D.	O. S.	O. D.	O. S.					
1	22	18	10	0.2	5/200	20/200	J19	J16	+2.50 cph. +0.50 cyl. ax. 90	20/70	+2.00 cyl. ax. 180	20/70-2	26
2	19	22	20	Could not see	20/50	20/70	J8	J10	+1.00 sph.	20/30	+0.50 sph. +2.00 cyl. ax. 60	20/30	28
3	25	27	12.5	2.06	20/20	20/20	J4	J6	+1.50 sph.	20/20-2	+1.50 sph.	20/20	39
4	22	21	10	2.68	20/50	20/40	J6	J8	+0.50 cyl. ax. 90	20/40	—0.50 cyl. ax. 180	20/30 pt.	25
5	13	38	18	2.60	20/20	20/70.1	J2	J10	+1.50 sph.	20/20	+1.50 sph. +0.75 cyl. ax. 135	20/30	28
6	28	27.5	14	0.32	20/30	20/50	J6	J8	+1.25 sph.	20/20	+1.25 sph.	20/30	32
7	33	9	14	10.41	20/200	20/20	J12	J4	+3.75 sph.	20/70	+2.00 sph.	20/30	33
8	19	18	5.5	8.61	20/70	20/30-2	J12	J12	+3.00 sph. +3.50 cyl. ax. 115	20/30-2	+3.50 sph. +3.00 cyl. ax. 75	20/30 pt.	29
9	23.5	30	14	4.23	20/30	20/30	J6	J4	+1.50 sph.	20/20-2	+1.00 sph. +0.75 cyl. ax. 90	20/20	29
10	22	22	5	5.8	20/30	20/40	J4	J8	—0.50 sph. +1.00 cyl. ax. 90	20/30	—0.50 sph. +1.00 cyl. ax. 90	20/50	34
11	24	24	11	6.1	20/30	20/50	J6	J16	+4.50 sph.	20/20	+5.00 sph. +0.50 cyl. ax. 180	20/30	28
12	18	24	5	1.68	20/40	20/40	J8	J14	+1.50 sph. +0.50 cyl. ax. 90	20/30	+1.00 sph. +1.00 cyl. ax. 90	20/20	31
13	29	24	12	1.28	20/20	20/20	J2	J3	+1.50 sph. +0.25 cyl. ax. 180	20/20	+1.25 sph. +0.25 cyl. ax. 90	20/20	32
14	30	17	5	1.1	20/30	20/40	J10	J2	+0.50 cyl. ax. 90	20/20	—0.50 cyl. ax. 180	20/20	33
15	30	34	3	1.48	20/100	20/100	J12	J10	—0.50 sph. +1.75 cyl. ax. 90	20/30	—0.50 sph. +2.00 cyl. ax. 90	20/30	27
16	22	18	12.5	Unable to take	5/200	5/200	J10	J18	+10.00 sph.	20/70	+10.00 sph.	20/100	28
17	21	26	9.5	0.96	20/100	20/200	J19	J20	+2.50 sph.	20/50	+2.50 sph. +0.50 cyl. ax. 90	20/50	34

No.	Postmydriatic Distance Correction O. D.	Vision	Postmydriatic Distance Correction O. S.	Vision	Addition for Near O. D.	Vision	Addition for Near O. S.	Vision	Fields		Color Vision
									O. D.	O. S.	
1	+2.00 sph. +0.50 cyl. ax. 90	20/50	+0.50 sph. +2.50 cyl. ax. 180	20/40	+2.00 sph.	J10	+2.00 sph.	J4	Normal	Normal	Color ignorant*
2	+0.50 sph. +0.25 cyl. ax. 90	20/30	+2.50 cyl. ax. 70	20/30-2	+1.00 sph.	J3	+1.50 sph.	J4	Normal	Normal	Normal
3	+0.25 sph.	20/15 pt.	+0.50 sph.	20/20	+0.75 sph.	J1	+0.50 sph.	J1	Normal	Normal	Almost normal
4	—0.50 cyl. ax. 180	20/40	—0.50 sph. —0.50 cyl. ax. 180	20/30-2	+1.50 sph.	J2	+2.00 sph.	J2	Normal	Normal	Normal
5	+0.25 sph.	20/15pt.	—0.50 sph. +0.75 cyl. ax. 135	20/40	None	J1	+1.00 sph.	J3	Normal	Normal	Normal
6	+0.75 sph.	20/20	+0.50 sph.	20/20	+1.50 sph.	J1	+1.50 sph.	J1	Normal	Normal	Normal
7	+3.75 sph.	20/70	+0.25 sph.	20/20	Unimproved	....	+0.75 sph.	J1	Contracted	Normal	Normal O. S., poor O. D.
8	+3.50 cyl. ax. 120	20/30pt.	+1.00 cyl. ax. 75	20/20pt.	+1.50	J2	+1.75 sph.	J2	Normal	Normal	Normal
9	+0.50 sph.	20/20	+0.25 cyl. ax. 40	20/20-2	+1.00 sph.	J3	+1.00	J3	Contracted	Contracted	Misses light shades
10	—1.00 cyl. ax. 10	20/20pt.	—1.00 cyl. ax. 180	20/30	+1.00 sph.	J3	+1.50 sph.	J4	Normal	Normal	Misses lighter shades
11	+1.25 sph.	20/20	+1.00 sph. +0.50 cyl. ax. 180	20/30-3	+1.50 sph.	J1	+2.00 sph.	J3	Normal	Normal	Normal
12	+0.50 sph. +1.05 cyl.	20/20pa.	+0.25 sph. +1.00 cyl. ax. 90	20/20	+2.00 sph.	J1	+1.50 sph.	J1	Normal	Normal	Color blind
13	+0.50 cyl. ax. 180	20/20	+0.25 cyl. ax. 180	20/20	+0.50 sph.	J1	+0.75 sph.	J1	Very small†	Same	Normal
14	—0.50 cyl. ax. 180	20/20	—0.50 cyl. ax. 180	20/20	+1.50 sph.	J4	....	...	Very small	Same	Color blind
15	—2.00 cyl. ax. 180	20/30	—2.00 cyl. ax. 180	20/30	+1.00 sph.	J2	+1.00 sph.	J2	Very small	Same	Normal
16	+8.00 sph.	20/70	+8.50 sph.	20/100	+3.00 sph.	J6	+2.50 sph.	J16	Contracted	Same	Normal
17	+1.50 sph.	20/50	+1.50 sph. +0.50 cyl. ax. 90	20/70	+2.00 sph.	J8	+2.00 sph.	J8	Contracted	Same	Normal

No.	Muscles	Ocular Condition Besides Refractive Error	Extra-ocular Condition Endonasal and General
1	1° exophoria; 1° left hyperphoria	O. D., parenchymatous keratitis necessitating optical iridectomy; O. S., iridocyclitis	None
2	Internal alternating squint; 3½° esophoria; 1° left hyperphoria	None	Chronic purulent otitis media
3	Orthophoria	None	Chronic myocarditis
4	Orthophoria	None	Neurasthenia; deflected septum (submucous done)
5	Orthophoria	O. S., iridocyclitis (arrested)	Deflected septum
6	1° exophoria	O. D., pterygium, nasal side	Deflected septum (submucous done)
7	Orthophoria	O. D., optic atrophy (tuberculous)	Pulmonary tuberculosis; laryngitis
8	Could not be tested	None	Neurasthenia; deflected septum
9	1° exophoria	....	Pulmonary tuberculosis
10	3° esophoria	O. S., pterygium (buried); O. S., chr. dacryocystitis (rapid dilatation)	Neurasthenia; deflected septum
11	Orthophoria	None	None
12	4° exophoria	None	None
13	1° exophoria	Optic atrophy, which improved under antisyphilitic treatment	Syphilis; migraine
14	Orthophoria	Argyll Robertson pupillary reaction	Neurosyphilis; deflected septum
15	1° exophoria	Tuberculous retinochoroiditis	Pulmonary tuberculosis
16	Internal alternating squint (could not be tested with phorometer)	Cherry-red spot in each macula	None
17	4° exophoria; 1½° left hyperphoria	None	Neurasthenia

* Especially light shades.

† Normal after treatment.

blindness occurs; exophoria couples with good depth perception, esophoria and hyperopia with poor depth perception. Many cases of general infections, cardiorenal, neuropsychiatric, and endonasal conditions are found among those who have premature presbyopia.

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ABSTRACT OF DISCUSSION

DR. W. O. LAMOTTE, Wilmington, Del.: Out of 2,000 persons, between 1 and 40 years of age, whose eyes were refracted, 1,254 females and 746 males, additions for near vision were prescribed for forty-four, thirty females and fourteen males. There were nineteen between 35 and 40, eight paralysis of accommodation or paralysis of accommodation from a diseased tooth or from any other known disease a premature presbyopia. Dr. Bonner says that the majority of his patients had hyperopia. In my series, however, there were thirteen cases of myopia, one of myopic astigmatism, and eight of mixed astigmatism in one or both eyes. This leaves, therefore, a little less than 50 per cent. in which there was hyperopia or hyperopic astigmatism. The American Encyclopedia of Ophthalmology says that persons with hyperopia become presbyopic in proportion as the hypermetropia is of higher degree; and, as Dr. Bonner says, there is a relation between hyperopia and premature presbyopia. These statements are true so far as persons with hyperopia have to have reading glasses before those with emmetropia and myopia;

TABLE 2.—*Findings in Cases 18-29: Refraction, Muscle Balance and Extra-Ocular Conditions*

No.	Distance Vision O. D.	Distance Vision O. S.	Near Vision O. D.	Near Vision O. S.	Mydriatic O. D.	Vision with Correction	Mydriatic O. S.	Vision with Correction	Age	Postmydriatic O. D.	Vision
18	20/40	20/40	J10	J10	+2.50 sph.	20/20	+2.50 sph.	20/20	37	+0.50 sph. +0.25 cyl. ax. 90	20/20
19	20/200	20/200	J10	J10	+0.50 sph. +0.50 cyl. ax. 90	20/15	+0.50 cyl. ax. 90	20/20	28	+0.50 sph.	20/15
20	20/70	20/70	J10	J3	+1.50 sph. +2.00 cyl. ax. 90	20/20	+1.50 sph. 2.00 cyl. ax. 90	20/20	32	+2.00 cyl. ax. 90	20/20
21	20/50	20/200	J6	J14	−0.50 sph. +0.75 cyl. ax. 55	20/30	−0.75 sph. +1.25 cyl. ax. 120	20/20	37	−0.75 cyl. ax. 145	20/20
22	20/40	20/50	J12	J14	+0.75 sph.	20/30	+0.75 sph. +0.50 cyl. ax. 90	20/20	27	+0.50 sph.	20/20
23	20/30	20/200	J10	J14	+1.50 sph.	20/30	+1.50 sph.	20/40	26	+0.50 sph.	20/20
24	20/70	20/50	J4	J3	+1.50 sph. +1.25 cyl. ax. 90	20/30	+2.00 sph. +0.50 cyl. ax. 90	20/30	30	+1.00 cyl. ax. 90	20/30
25	20/20 pt.	20/20	J10	J4	+0.50 sph. +0.25 cyl. ax. 90	20/20	+0.50 sph. +0.25 cyl. ax. 90	20/20	40	+0.25 cyl. ax. 75	20/20
26	20/100	20/70	J10	J12	+1.00 cyl. ax. 150	20/200	−0.50 sph. +1.00 cyl. ax. 25	20/70	29	−1.00 cyl. ax. 30	20/50
27	20/20	20/100	J1	J14	−0.50 sph. +1.50 cyl. ax. 75	20/20	+1.50 cyl. ax. 60	20/70	32	−0.50 sph. −0.50 cyl. ax. 165	20/15
28	20/20	20/30	J4	J4	+0.50 sph.	20/15	+0.50 sph.	20/20	27	+0.25 sph.	20/20
29	20/200	20/70	J10	J20	+2.50 sph. +1.00 cyl. ax. 90	20/70	+2.00 sph. +2.00 cyl. ax. 90	20/15	21	+2.00 sph. +1.00 cyl. ax. 90	20/15

No.	Postmydriatic O. S.	Vision	Addition for Near O. D.	Vision	Addition for Near O. S.	Vision	Muscles	Ocular Conditions Besides Refractive Error	General Conditions
18	+2.00 sph. [illegible] cyl. ax. [illegible]	20/20	+1.50 sph.	J1	+1.75 sph.	J2	Orthophoria	None	[illegible]
19	+0.50 sph.	20/15	+0.50 sph.	J1	+1.00 sph.	J1	Orthophoria	None	[illegible]
20	+2.50 cyl. ax. 90	20/20	+1.50 sph.	J1	+0.75 sph.	J1	1° exophoria	None	
21	−0.50 sph. −1.25 cyl. ax. 30	20/20	+0.75 sph.	J1	+1.00	J2	Orthophoria	None	
22	+0.50 sph. [illegible] cyl. ax. [illegible]	20/20	+1.25 sph.	J1	+1.25 sph.	J1	Divergence excess, 4° exophoria	......	Pulmonary tuberculosis
23	+0.50 sph. [illegible] cyl. ax. [illegible]	20/20	+1.00 sph.	J1	+1.25 sph.	J1	Orthophoria	......	Pulmonary tuberculosis
24	+0.50 sph. [illegible] cyl. ax. [illegible]	20/20	+1.00 sph.	J1	+1.00 sph.	J2	1° esophoria, ½° right hyperphoria, 1° exophoria	......	Had an acute attack of [illegible]
25	−0.25 cyl. ax. 165	20/15	+1.25 sph.	J1	+1.75 sph.	J1	[illegible]	None	
26	−2.50 cyl. ax. 145	20/20	+1.25 sph.	J4	+1.00 sph.	J1	Not taken	None	
27	−1.00 cyl. ax. 150	20/20	———	J1	+1.25 sph.	J1	Not taken	None	
28	−0.50 sph.	20/15	+1.25 sph.	J1	+1.75 sph.	J2	Not taken	None	
29	+2.00 sph. +1.00 cyl. ax. 90	20/[illegible] plano	+1.75 sph.	J1	+2.50 sph.	J1	Orthophoria	None	

patient gave a negative Wassermann reaction of the spinal fluid. Ordinarily in cerebrospinal lesions, spinal fluid examinations would be sufficient, but in this case a blood Wassermann test, done after the paper had been published, gave a four plus reaction. There were many cases of muscular weakness. Depth of perception was good in cases of exophoria, and poor in cases of esophoria and orthophorio with high hyperopia. In this series of ex-service men, there were twenty out of 204 in which there was premature presbyopia. The relationship to others who were not ex-service men was about the same as in Dr. LaMotte's cases. As there were many cases of premature presbyopia associated with focal and general infections, and cardiorenal, neuropsychiatric and endonasal conditions, therefore those with premature presbyopia should have a thorough physical and neurologic examination. This collaboration was enjoyed in the United States Veterans' Bureau.

THE CLINICAL RESULTS WITH FLUMERIN IN SYPHILIS [*]

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There is no field of medicine so difficult, and yet so widely exploited, as the chemotherapy of syphilis. The last few years have witnessed the introduction of a host of new drugs, arsenical, mercurial and bismuth preparations, designed to supplant existing methods of treatment. Unfortunately, these preparations have been only too often prematurely introduced on the basis of insufficient experimental evidence by overenthusiastic investigators, or worse, of unwarranted therapeutic claims made by unscrupulous manufacturers. As Stokes[1] has recently pointed out, the average practitioner is not sufficiently familiar with the mechanism of drug action in syphilis to enable him to judge the value of new preparations, so that before a drug is made available for general distribution, all possible information regarding its use should be placed before the profession. For this reason the present paper will provide in detail the clinical results of the use of flumerin, the disodium salt of hydroxymercurifluorescein, in a considerable series of syphilitic patients.

This drug, developed from the chemical and toxicologic standpoints by E. C. White, has been thoroughly studied in rabbit syphilis by J. H. Hill. Some details of these phases of the work, together with a general statement of its clinical trial, carried out under the direction of one of us (J. E. M.) in the syphilis department of the medical clinic, were given in a preliminary report.[2] Since the publication of our first paper, the drug has been placed in the hands of other investigators, to whose results some reference may now be made. J. A. Kolmer,[3] A. S. Loevenhart,[3] and C. H. Browning[3] have confirmed our statements as to the extremely low toxicity of the drug for animals (minimum lethal dose of 30 to 40 mg. per kilogram of body weight for mice, rats, rabbits, and dogs) and Kolmer[3] has demonstrated that, in common with other mercurials,[4] flumerin has no action on trypanosome infections.

Hill's work on rabbit syphilis has been extended[5] to show that not only are single large doses (30 mg. per kilogram) curative, but also that a biologic cure, so far as may be determined by negative lymph node transfers from treated animals, may be obtained with ten daily repeated doses of 5 mg. per kilogram. She has further pointed out, as have also numerous other investigators in the field of experimental syphilis, that similar results cannot be obtained with repeated injections of other mercurials in common use, such as mercuric cyanid, salicylate, or red mercuric iodid, the dosage of these drugs employed in her experiments being comparable to average therapeutic doses in man. Though flumerin possesses no trypanocidal activity, it is spirocheticidal, as shown by animal experiments, and to an extent not shown by other mercurials.[6] Repetition of a few details regarding our therapeutic routine is desirable.

Flumerin is a dark red powder, freely soluble in distilled water, and suitable for clinical use in a concentration of 2 per cent. Though solutions of the drug are stable for several days, we have always used freshly prepared solutions. Injections were made intravenously, repeated treatments being easily possible because of the nonirritating qualities of the drug and the complete absence of thrombosis. The interval between doses was usually two or three days, a series consisting of not less than five injections. The majority of our patients received an average dose of 3 mg. per kilogram of body weight, though to fifteen patients 4 or 5 mg. per kilogram was given. It must be emphasized that in all cases reported in this paper, except in a special group, flumerin was the first treatment given, and that in no instance was arsphenamin or any other drug administered during the period of flumerin treatment. We see no accurate way to evaluate the worth of a drug, if its effect must be measured in conjunction with that of another preparation.

In all, 117 patients in the syphilis department were treated with flumerin during the seventeen-month period of this investigation. Of these, twenty-two cases have been discarded, chiefly because of insufficient treatment, leaving ninety-five cases for consideration. For purposes of study, these have been subdivided into four groups: early syphilis (primary and secondary), thirty-four cases; late syphilis (with tertiary lesions), twenty-nine cases; latent syphilis (Wassermann positive), twenty cases; miscellaneous, twelve cases.

THE EFFECT OF FLUMERIN IN EARLY SYPHILIS

In order to economize space, the details of our thirty-four cases are summed up in Table 1, so that only a summary of results is necessary in the text.

Healing of Lesions.—Six patients had chancres only on admission. In five of these, the lesion was healed by flumerin, but an average of twenty-six days and six doses of the drug was required to produce this result. The average is made artificially high by Case 11, in

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[*] From the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital.

[*] This investigation has been aided by a grant from the United States Interdepartmental Social Hygiene Board.

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[3] Personal communication to the authors.

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TABLE 1.—*Results of Flumerin Treatment in Primary and Secondary Syphilis**

Case Number	Lesions	Number of Doses of Flumerin	Average Dose, Gm.	Total Dose, Gm.	Average Dose per Kilogram, Mg.	No. of days to Heal Lesions	No. of Doses to Heal Lesions	Blood Wassermann Reaction at Time of Dose																Number of Months Followed After Flumerin	Character of Subsequent Treatment	Clinical Relapse	Subsequent Course of Blood Wassermann Reaction	Cerebrospinal Fluid		Comment
								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					Time Elapsed Since Flumerin	Result	
11	Chancre	7	0.20	1.40	3	58	6	0	0	0	0	0	0	0	..	..	..	..	..	..	..	..	..	11	Regular	None	Always negative	4 mo.	Negative	Cure?
17	Chancre	12	0.19	2.38	2+	30	5	4	4	4	4	4	4	4	4	4	1	0	2	0	..	..	..	16	Regular	None	Two recurrences during arsphenamin	3 mo.	Negative	......
71	Chancre	11	0.16	1.76	3	23	11	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	..	10	None	None	Suggestive negative 10 mo. later	9 mo.	Negative	......
78	Chancre	9	0.20	1.80	3	Unhealed		0	0	0	0	0	0	0	0	0	..	..	..	..	..	..	..	9	Regular	Two recurrences during arsphenamin	Always negative	6 mo.	Group II	......
86	Chancre	13	0.18	2.38	3	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	..	..	..	4	Regular	None	Always negative	......	Negative	Cure?
112	Chancre	9	0.26	2.40	4.5	7	4	4	4	3	0	4	3	0	0	0	..	..	..	..	..	..	..	..	......	......	......	......	......	......
5	Rash	5	0.20	1.03	3	12	5	4	2	4	0	1	0	..	..	..	..	..	..	..	..	..	..	..	......	......	......	......	......	......
7	Papulopustular rash	8	0.13	1.04	3	20	8	4	4	4	4	4	0	0	0	..	..	..	..	..	..	..	..	20	Regular	None	Always negative	......	......	Cure?
8	Papular rash	11	0.20	2.20	3	16	6	4	4	4	4	4	3	4	0	0	0	0	..	..	..	..	..	1	None	None	Always negative	......	......	......
12	Condylomas	8	0.20	1.60	3	30	8	4	4	4	4	4	4	0	0	..	..	..	..	..	..	..	..	15	Regular	None	Always negative	10 mo.	Negative	Cure?
13	Papular rash	11	0.18	1.98	3	16	6	4	4	4	4	4	4	4	2	0	0	0	..	..	..	..	..	5	Regular	None	Always negative	......	......	......
15	Rash	6	0.20	1.20	3	18	6	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	3	Regular	None	Suggestive negative after 3 doses arsphenamin	......	......	......
24	Alopecia	10	0.22	2.20	3	10	5	4	4	4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	......	......	......	......	......	......
31	Papular rash	4	0.11	0.45	3	Unhealed		4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	......	......	......	......	......	......
34	Mucous patches	12	0.18	2.21	3	Unhealed		4	4	4	4	4	3	0	2	2	0	4	0	..	..	..	..	14	Regular	One recurrence during arsphenamin	One recurrence during arsphenamin	......	......	......
68	Pustular rash	16	0.16	2.69	3	Unhealed		4	4	4	4	4	4	4	2	4	0	0	0	0	0	0	0	..	......	......	......	......	......	......
70	Rash	17	0.18	3.21	3	7	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	Regular	None	Negative after 5 doses 606	......	......	......
73	Papular rash	14	0.20	2.80	3	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..	..	9	Irregular	None	Always negative	9 mo.	Group II	......
74	Papular rash	12	0.15	1.90	3	18	7	4	4	4	4	4	4	4	0	0	0	0	0	..	..	..	..	5	Regular	None	Always negative	3 mo.	Group III	......
76	Rash	13	0.19	2.48	3	9	5	4	4	4	4	4	4	4	4	4	4	1	4	4	..	..	..	6	Regular	Recurrence during arsphenamin	Always negative	2 mo.	Negative	......
79	Rash	16	0.17	2.85	3	30	8	4	4	4	4	4	4	3	0	0	2	0	1	2	2	4	0	8	Irregular	One recurrence during 205	Always negative	2 mo.	Negative	......
80	Rash	11	0.19	2.14	3	10	5	3	0	0	0	0	0	0	0	0	0	0	..	..	..	..	..	7	Regular	None	Always negative	5 mo.	Group II	......
82	Condylomas	13	0.20	2.60	3	12	6	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	10	Irregular	None	Always positive	8 mo.	Group III	......
83	Rash and mucous patches	15	0.13	1.99	3	51	13	4	4	4	4	4	1	3	1	1	3	1	0	4	?	?	..	5	Regular	None	Negative after 2 doses 606	5 mo.	Group I	......
88	Papular rash	12	0.16	1.96	3	21	6	4	4	4	4	4	0	0	0	0	0	0	0	..	..	..	..	8	Irregular	None	Always negative	7 mo.	Negative	Cure?
89	Condylomas	10	0.18	1.80	3	10	5	0	0	0	0	0	0	0	0	0	0	..	..	..	..	..	..	3	Regular	None	Always negative	......	......	......
90	Papular rash	11	0.20	2.20	3	21	6	4	4	4	4	4	4	4	4	4	4	4	0	..	..	..	..	2	Irregular	None	Negative after last dose flumerin	......	......	......
97	Rash and mucous patches	15	0.30	4.54	4.5	5	3	4	4	4	4	4	2	4	1	0	3	0	0	0	0	0	..	5	Regular	None	Always negative	2 mo.	Negative	Cure?
98	Moist papules	15	0.26	3.98	4	7	3	4	0	4	4	4	3	0	2	0	0	0	2	0	0	0	..	2	Regular	None	One recurrence with arsphenamin	......	......	......
103	Papular rash	6	0.25	1.50	4	9	5	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	1	Regular	None	Negative after 3 doses arsphenamin	......	......	......
104	Papular rash and mucous patches	13	0.26	3.44	4	Unhealed		4	4	4	4	4	4	4	4	4	4	0	4	4	..	..	..	..	......	......	......	......	......	......
106	Papular rash	11	0.27	2.93	5	21	9	4	4	4	4	?	2	3	1	0	0	0	..	..	..	..	..	..	......	......	......	......	......	......
108	Papular rash	13	0.26	3.46	5	28	13	4	?	4	4	4	4	2	0	0	2	0	0	0	..	..	..	4	Regular	None	Always negative	4 mo.	Negative	Cure?
110	Papular rash	11	0.18	2.02	4	10	4	4	4	4	4	4	4	4	4	4	4	3	3	0	..	..	..	..	......	......	......	......	......	......
111	Papular rash	12	0.33	3.99	5	19	8	4	4	4	4	4	4	4	4	1	?	0	0	..	..	..	..	3	Regular	None	Always negative	......	......	......

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* In this and subsequent tables, blood Wassermann reactions are given a numerical value on a scale of four plus; 4 corresponding to positive, 3 to suggestive positive, 2 to doubtful, 1 to suggestive negative, and 0 negative. The character of subsequent treatment is indicated by "regular," provided the patient was at once transferred from flumerin to our routine of courses of arsphenamin, alternating with courses of mercury by inunction and continuing this during the period of observation, and as "irregular" if at any time during [illegible] observation there is a lapse without treatment for a month or more.

which the treatment was markedly irregular, more than two months being required to complete seven injections of flumerin. In Case 78, the chancre was unhealed, but this patient had a very resitant infection, with two subsequent recurrences under arsphenamin. His record is given in detail in our first paper. None of these patients subsequently developed secondary syphilis.

In twenty-eight patients with various lesions of early secondary syphilis, all lesions were healed in twenty-four instances, in an average of seventeen days and six plus doses. The therapeutic effect exercised by repeated doses of 4 or 5 mg. per kilogram was slightly greater than when 3 mg. per kilogram was employed, but not markedly so. In four patients, not all lesions had healed after four, twelve, sixteen and thirteen doses, respectively. In each of these instances, rashes disappeared promptly, but mucous lesions persisted, a result not uncommon with other mercurials. In one case (79), mucous lesions containing spirochetes recurred during treatment with flumerin.

At the completion of flumerin treatment, our patients were transferred to our regular routine antisyphilitic treatment, namely, courses of arsphenamin alternating with courses of mercury by inunction. Twenty-seven of the thirty-four early cases were followed for periods ranging from one to twenty months after flumerin was stopped, the average being seven months. The character of their subsequent treatment is indicated in Table 1. In three of these twenty-seven patients, recurrences of lesions of a secondary type made their appearance shortly after the patient had completed a course of arsphenamin. In twenty-four, no clinical recurrence of any type was manifest during the period of observation. Seven patients have completed our serologic requirements for probation,[7] and are regarded as instances of probable cure.

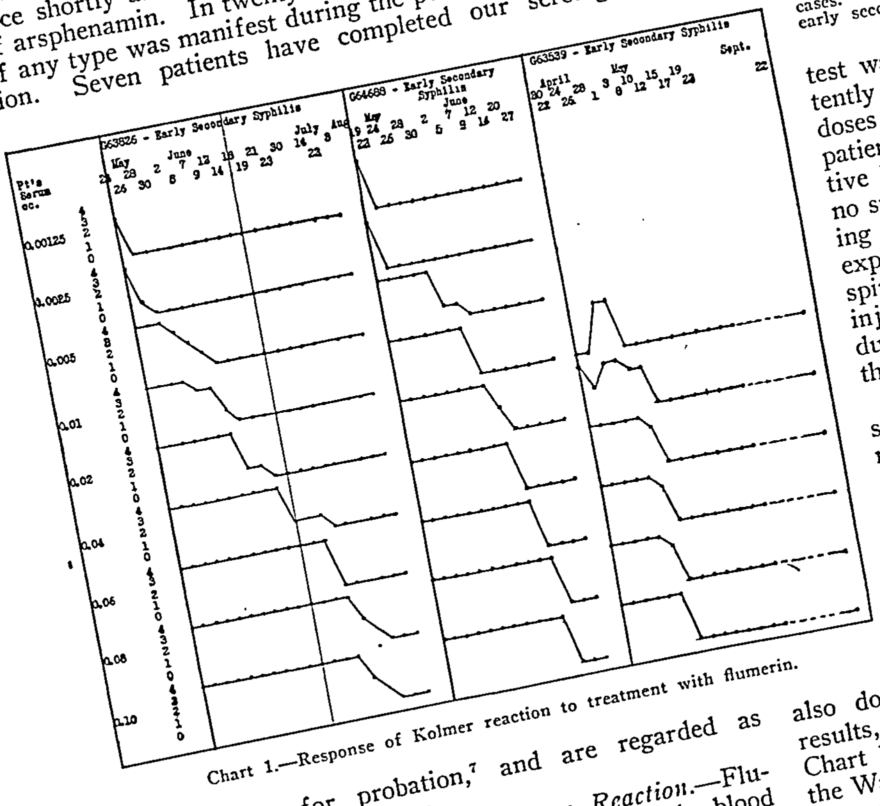

Chart 1.—Response of Kolmer reaction to treatment with flumerin.

Effect on the Blood Wassermann Reaction.—Flumerin exerts a prompt and striking effect on the blood Wassermann reaction of patients with early syphilis. In three patients with seronegative primary syphilis, the reaction never became positive, either during or after flumerin treatment. Of the thirty-one patients with seropositive primary or secondary syphilis, the Wassermann reaction was reversed to negative in twenty, reduced in strength in one, and remained persistently positive during flumerin treatment in ten instances. The average number of doses necessary to reverse the test was nine plus, while to the ten persistently positive cases an average of ten plus doses was given. In five of these ten patients the test was later reversed to negative by arsphenamin; four of the ten took no subsequent treatment; and in the remaining instance, Wassermann fastness was explainable on the basis of a Group III spinal fluid.[7] In a few patients, repeated injections of 4 or 5 mg. per kilogram produced no more rapid Wassermann response than did the dose of 3 mg. per kilogram.

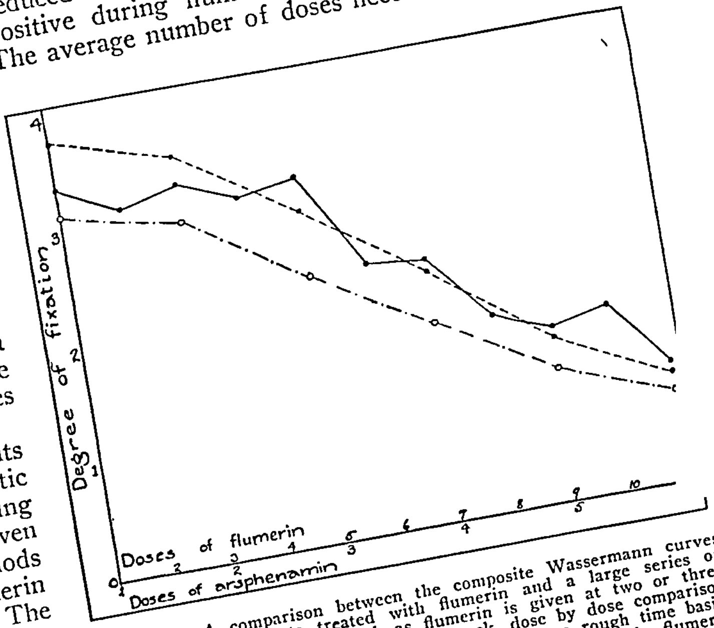

Chart 2.—A comparison between the composite Wassermann curves of a series of patients treated with flumerin and a large series of arsphenamin patients. Inasmuch as flumerin is given at two or three day intervals, and arsphenamin once a week, dose by dose comparison is misleading. The curves are therefore plotted on a rough time basis, two doses of flumerin for each dose of arsphenamin. Both the flumerin curve and the lower arsphenamin curve are based on the inclusion of patients with seronegative primary syphilis; the upper arsphenamin curve is based on early secondary syphilis only. The degree of fixation of the Wassermann reaction is expressed on a scale of four plus. Solid line, primary and early secondary; flumerin; thirty-five cases. Broken line, early secondary; arsphenamin; 343 cases. Line of dashes with hollow dots, primary and early secondary; arsphenamin; 511 cases.

In only three instances was there a Wassermann recurrence during subsequent treatment or observation, while in fourteen patients the test remained permanently negative for periods ranging from three to twenty months.

As will be noted from the table, a blood Wassermann reaction was done at the time of each injection of flumerin, the technic employed being that described in a previous paper.[8] In a few cases, repeated tests were also done by the new Kolmer modification.[9] The results, as indicated by three specimen curves shown in Chart 1, leave no doubt as to the effect of flumerin on the Wassermann reaction.

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[7] Moore, J. E.: Studies in Asymptomatic Neurosyphilis, II, The Classification, Treatment and Prognosis of Early Asymptomatic Neurosyphilis, Bull. Johns Hopkins Hosp. 33: 231 (July) 1922.

[8] Keidel, A., and Moore, J. E.: The Wassermann Reaction in th Johns Hopkins Hospital, Bull. Johns Hopkins Hosp. 34: 16 (Jan.) 192

[9] Kolmer, J. A.: Studies in the Standardization of the Wasse mann Reaction, XXX, A New Complement Fixation Test Based up the Results of Studies in the Standardization of Technic, Am. J. Syp 6: 82 (Jan.) 1922.

A comparison of the Wassermann response of these thirty-four patients with the effect produced on the test by arsphenamin is shown in Chart 2. In the preparation of this chart, composite curves for each series (flumerin, thirty-four cases; arsphenamin, 511 cases) have been constructed in accordance with a previously described method.[10] The curves apparently indicate that flumerin is almost as efficacious as arsphenamin in reducing the reaction. It is certainly more active in

Table 2.—*Results of Flumerin Treatment in Tertiary Syphilis*

Case Number	Lesions	Number of Doses of Flumerin	Average Dose, Gm.	Total Dose, Gm.	Average Dose per Kilogram, Mg.	No. of days to Heal Lesions	No. of Doses to Heal Lesions	Blood Wassermann Reaction at Time of Dose																Number of Months Followed After Flumerin	Character of Subsequent Treatment	Clinical Relapse	Subsequent Course of Blood Wassermann Reaction	Cerebrospinal Fluid		Comment
								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					Time Elapsed Since Flumerin	Result	
1	Nodular syphilid	8	0.11	0.90	3	12	6	4	4	3	?	2	4	0	0									1	None	None	Always negative	......	......	......
3	Gumma of tonsil	12	0.15	1.81	3	15	5	4	4	2	2	2	2	0	4	0	0	0	0					2	Irregular	None	Recurred during course of arsphenamin	......	......	......
4	Nodular syphilid	12	0.18	2.16	3	6	4	4	4	2	2	2	1	3	4	0	0	0	0					..	......	......	......	......	......	......
9	Gumma of leg	4	0.18	0.72	3	Unhealed		4	4	4	4													2	Regular	None	Negative by fourth dose of arsphenamin	......	......	Lesion not quite healed by arsphenamin
15	Gumma of skull	8	0.11	0.90	3	Unhealed		4	4	4	4	4	4	4	4									..	......	......	......	......	......	......
20	Gumma of leg	10	0.13	1.38	3	Unhealed		0	2	4	4	4	4	4	0	0	4							..	......	......	......	......	......	......
23	Gummas of skin	5	0.15	0.78	3	Unhealed		4	4	4	4	4												..	......	......	......	......	......	......
25	Nodular syphilid	9	0.15	1.35	3	21	9	0	0	0	0	0	0	0	0	0								16	Regular	None	Always negative	2 mo.	Negative	......
29	Gumma of leg	12	0.17	2.08	3	58	12	4	4	4	0	4	1	0	1	4	0	0	0					..	......	......	......	......	......	......
30	Gumma of penis	12	0.18	2.17	3	Unhealed		3	4	1	0	4	4	1	4	2	0	4	0					8	Irregular	None	Recurred positive during arsphenamin	......	......	......
33	Gumma of nasal septum	6	0.16	1.01	3	Unhealed		4	4	4	4	2	2											..	......	......	......	......	......	......
35	Gumma of leg	12	0.18	2.21	3	23	10	4	0	4	4	4	2	4	2	0	0	1	4	0				15	Irregular	One recurrence after arsphenamin	Always negative	14 mo.	Negative	......
36	Gumma of chest	11	0.18	2.01	3	Unhealed		0	0	0	0	0	0	0	0	0	0	0						3	Regular	None	Always negative	......	......	Lesion not healed by one course of arsphenamin
39	Nodular syphilid	13	0.19	2.54	3	19	7	2	4	4	4	3	4	2	2	3	3	0	0	0	1			14	Regular	None	One recurrence with arsphenamin	2 mo.	Negative	......
40	Gumma of sternomastoid	4	0.11	0.45	3	11	4	4	4	4	4													1	Regular	None	Always positive	......	......	......
49	Gumma of leg	10	0.21	2.12	3	33	9	4	4	4	0	4	4	4	4	4	4							..	......	......	......	......	......	......
50	Periostitis of tibia	14	0.15	2.15	3	40	12	4	4	4	4	4	4	4	4	4	4	4	4	4	4			1	Regular	None	Always positive	......	......	......
51	Nodular syphilid	15	0.21	3.23	3	14	6	0	4	2	0	1	4	3	4	4	4	?	4	?	?	0		13	Regular	None	One recurrence with arsphenamin	3 mo.	Negative	......
54	Gumma of leg	12	0.13	1.63	3	42	12	4	4	4	4	4	4	4	4	4	4	4	4					12	Regular	One recurrence after arsphenamin	Always positive	......	......	......
57	Gumma of leg	5	0.17	0.85	3	Unhealed		4	4	4	4	4												..	......	......	......	......	......	......
58	Gumma of skull	13	0.16	2.15	3	37	12	4	4	4	4	4	4	4	4	4	4	4	4					3	Irregular	None	Always positive	......	......	......
60	Gumma of skull	9	0.16	1.42	3	28	9	4	4	4	4	4	4	4	4	4								10	Irregular	Recurrence 6 mo. after flumerin	Negative by fifth dose of arsphenamin	......	......	......
63	Gumma of leg	13	0.12	1.58	3	16	6	4	4	4	4	4	4	4	4	4	4	4	4	4				12	Regular	None	Still positive	......	......	......
66	Nodular syphilid	13	0.12	1.66	3	12	4	4	4	4	4	4	4	4	4	4	4	4	4	4				12	Regular	None	Always positive	......	......	......
69	Ulcer right toe	14	0.13	1.83	3	19	8	4	4	4	4	4	4	4	?	?	?	2	0	3	0			6	None	Recurrence 5 mo. after flumerin	Always negative	......	......	Spinal fluid Group 3 6 mo. before flumerin
91	Leg lesion	13	0.18	2.34	3	Unhealed		4	4	4	4	4	4	4	4	4	4	4	4	4				8	Regular	None	Negative after 2 courses of arsphenamin	......	......	Lesion not affected by arsphenamin
94	Gumma of soft palate	8	0.14	1.19	2	38	7	4	4	4	4	4	4	4	4									..	......	......	......	......	......	......
105	Gumma of skull	12	0.17	2.10	3	28	11	4	4	4	4	4	4	4	4	4	4	4	4					3	Regular	None	Always positive	......	......	Lesion not quite healed by arsphenamin
107	Gumma of larynx	5	0.07	0.37	2	Unhealed		4	4	4	4	4												..	......	......	......	......	......	......

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[10] Moore, J. E.: Studies on the Influence of Pregnancy in Syphilis, I, The Course of Syphilitic Infection in Pregnant Women, Bull. Johns Hopkins Hosp. 34: 89 (March) 1923.

this respect than other mercurials. This single point, however, is not to be interpreted as indicating the equality of the arsphenamins and flumerin, since the markedly inferior activity of flumerin in the healing of lesions is also to be considered.

The Cerebrospinal Fluid in Early Syphilis Following Flumerin Treatment.—A point of interest in this study was to determine whether the immediate use of flumerin instead of an arsphenamin in early syphilis increased the incidence of abnormal spinal fluids in this group of patients. Naturally, the small number of cases makes accurate comparison with arsphenamin statistics impossible. It may be said, however, that no neurorecurrences developed in the flumerin series, and that of fifteen patients in whom puncture was performed following flumerin, ten had completely normal spinal fluids. The incidence of fluid abnormalities in this group, 33 per cent., is about that of untreated early syphilis, suggesting that the use of flumerin has probably not rendered the nervous system more liable to invasion by the spirochete.

Table 3.—*Effect of Flumerin on the Healing of Lesions*

Type of Syphilis	Total Cases	Lesions Healed by Flumerin	Aver. Number of Days to Heal	Aver. Number of Doses to Heal	Unhealed		Aver. Number of Doses to Unhealed Cases
					Improved	Unimproved	
Early	31	26	21+	7+	4	1	11
Late	29	19	24+	8+	8	2	7+
of which gummas	22	12	29+	9+	8	2	7+
Nodular syphilids	6	6	14+	6+	—	—	—

In summary, then, a study of these patients with early syphilis indicates that flumerin has spirocheticidal properties to an extent not shown by other commonly used mercurial drugs; it heals the lesions of early syphilis with a fair degree of constancy and rapidity, exercising less effect than the arsphenamins, especially on mucous lesions; and it exerts a powerful effect on the blood Wassermann reaction.

THE EFFECT OF FLUMERIN IN TERTIARY SYPHILIS

Detailed information regarding twenty-nine cases of tertiary syphilis is given in Table 2. These patients were selected for flumerin treatment because the effect of the drug on the healing of lesions could be measured easily. Most of the patients had cutaneous gummas; several presented nonulcerative nodular syphilids, and a few had tertiary bone lesions.

Healing of Lesions.—In nineteen of the twenty-nine patients, all lesions were healed, an average of twenty-four days and eight doses of the drug being consumed in the process. Twelve of the patients had cutaneous gummas, ranging in size from 1 to 15 cm. in diameter. In six patients, nodular syphilids were healed promptly, the length of treatment necessary being considerably less than in the case of gummas. Comparative data with regard to the healing of early and late syphilis is shown in Table 3.

In ten patients, most of whom had large cutaneous gummas, complicated in two by underlying bone lesions, complete resolution of lesions was not accomplished by flumerin, an average of seven plus doses being given. There was marked improvement in eight of these, however, at the expiration of flumerin therapy. Two patients presented bone lesions absolutely unaffected by flumerin, both of which later proved resistant to arsphenamin also.

Recurrence of tertiary lesions developed in four patients, in each instance during a lapse following flumerin treatment. Fourteen patients were followed during routine antisyphilitic treatment for periods ranging from one to fifteen months, and in all of these further clinical progress was uneventful.

Effect of Flumerin on the Blood Wassermann Reaction in Tertiary Syphilis.—In five of the twenty-nine cases, the Wassermann reaction was reversed to a permanent negative by an average of nine doses of flumerin. In six additional cases, it was reduced in strength, but was not rendered permanently negative. The test was unchanged in two patients whose Wassermann reaction was negative at the beginning of treatment, while in sixteen it remained persistently positive during the administration of flumerin. Eight of these sixteen patients were subsequently treated with arsphenamin; in three, the positive test was reversed to negative by arsphenamin, and in five, the patients proved Wassermann fast after an average of eight months' combined arsphenamin and mercury therapy. A comparison of these figures with the Wassermann results obtained in early syphilis is shown in Table 4. No attempt is made to institute a comparison with arsphenamin results because of the small number of cases in the flumerin series and the irregular character of the Wassermann response.

As in the case of early syphilis, the results of flumerin in tertiary syphilis may be summed up in the statement that resolution of lesions was usually accomplished, and that, in some instances, a definite effect on the blood Wassermann test was noted. These results are not as rapidly obtained as with the arsphenamins, but seem equal to or better than the results from other mercurial drugs.

Table 4.—*Effect of Flumerin on the Blood Wassermann Reaction in Different Types of Syphilis*

	Total Cases	Wassermann Reaction Reduced to Negative by Flumerin	Average Doses Necessary to Reverse Wassermann Reaction	Wassermann Reaction Reduced in Strength	Wassermann Reaction Persistently Positive During Flumerin	Average Doses to Persistently Positive Cases	Wassermann Reaction Positive During Flumerin Changed to Negative by Arsphenamin	Made Negative by Flumerin; Later Recurrence	During Subsequent Treatment, Wassermann Reaction Remains	
									Negative	Positive
Early	31	20	9+	1	10	10+	5	3	14	1
Late	29	5	9+	6	16	9+	3	2	1	5
Latent	20	7	9+	3	10	16	—	3	3	10

EFFECT OF FLUMERIN IN WASSERMANN POSITIVE LATENT SYPHILIS

Twenty cases are in the group of Wassermann positive latent syphilis, only six of which, however, had not been previously treated. In these six patients, the blood Wassermann test was reversed to negative by flumerin in three (Cases 26, 32 and 45), though in two (Cases 26 and 45) a Wassermann recurrence developed during subsequent treatment. In the other three patients (Cases 37, 53 and 47), the blood Wassermann test remained positive after an average of nine doses of the drug.

The remaining fourteen cases are of particular interest, since in each instance some preceding treatment with arsphenamin and mercury had been given, the blood Wassermann reaction remaining persistently positive. The duration of previous treatment ranged from two to thirty-six months, with an average of eleven months. The results obtained with flumerin were not especially striking. The blood Wassermann reaction was reversed to negative in only four instances (Cases 27, 115, 116 and 117). In one of these (Case 116), the patient lapsed from observation on the completion of flumerin therapy; in a second (Case 117), there was a subsequent Wassermann recurrence; and in only two was the reversal to negative permanent. In the remaining ten patients, the test was still positive after an average of sixteen injections of flumerin, though its strength was reduced in three of these.

TABLE 5.—*Results of Flumerin in Latent (Wassermann Positive) Syphilis*

Case Number	Duration of Treatment Before Flumerin	Number of Doses of Flumerin	Average Dose, Gm.	Total Dose, Gm.	Average Dose per Kilogram, Mg.	Blood Wassermann Reaction at Time of Dose																Number of Months Followed After Flumerin	Character of Subsequent Treatment	Clinical Relapse	Subsequent Course of Blood Wassermann Reaction	Cerebrospinal Fluid		Comment
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					Time Elapsed Since Flumerin	Result	
2	15 mo.	16	0.25	4.06	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	18	None	None	Always positive	......	......	Spinal fluid negative 1 year before flumerin
26	None	14	0.20	2.82	3	4	4	4	1	4	4	4	3	4	2	0	0	0	4	0	0	1	Regular	None	Recurred positive with arsphenamin	......	......	....
27	7 mo.	10	0.16	1.62	3	1	4	4	4	4	4	0	0	0	0	..	..	..	..	..	..	10	Regular	None	None	3 mo.	Group III	....
32	None	11	0.18	2.01	3	0	2	0	2	0	2	1	0	0	0	0	..	..	..	..	..	7	Regular	None	Always negative	3 mo.	Negative	....
37	None	8	0.20	1.61	3	4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	......	......	......	......	......	....
41	15 mo.	19	0.19	3.63	3	4	3	4	0	2	3	4	0	2	0	3	2	4	4	4	0	14	Regular	None	Always positive	11 mo.	Negative	....
45	None	8	0.13	1.05	3	4	4	4	0	0	0	0	0	..	..	..	..	..	..	..	..	1	Regular	None	Recurred suggestive positive with arsphenamin	......	......	....
47	None	9	0.18	1.65	3	4	4	4	4	4	4	4	2	4	..	..	..	..	..	..	..	2	Regular	None	Always positive	......	......	....
53	None	12	0.16	1.95	3	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	3	Regular	None	Always positive	3 mo.	Negative	....
56	2½ mo.	13	0.14	1.90	3	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	12	Irregular	None	Always positive	1 wk.	Group II	....
62	19 mo.	16	0.18	3.03	3	2	4	4	4	4	4	4	2	4	2	3	4	4	3	4	4	12	Irregular	None	Always positive	10 mo.	Negative	....
65	12 mo.	12	0.17	2.12	3	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	11	Irregular	None	Always positive	......	......	....
77	15 mo.	15	0.16	2.50	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	......	......	......	......	......	....
92	4 mo.	5	0.12	0.60	3	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	3	None	None	Always positive	......	......	....
96	8 mo.	15	0.20	3.07	4	4	0	4	?	?	2	3	0	1	2	?	0	0	4	0	..	3	Regular	None	Always negative	......	......	....
113	14 mo.	12	0.10	1.10	2	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	11	Regular	None	Reduced by further arsphenamin	......	......	C. S. F. Group 2 1 year before flumerin
114	6 mo.	36	0.19	7.0	3	See comment..................................																..	......	None	See comment	......	Negative	Patient Wassermann fast after 6 mo. arsphenamin; all further treatment flumerin; Wassermann reduced but not negative
115	36 mo.	24	0.13	3.15	2	See comment..................................																..	......	None	See comment	......	Negative	Wassermann-fast for 3 yrs.; reduced *permanently negative* by flumerin
116	3 mo.	14	0.10	1.40	1.7	4	4	1	0	4	0	0	0	0	0	0	0	0	..	..	..	..	......	None	......	......	Negative	....
117	2 mo.	12	0.14	1.70	2	0	3	2	4	0	4	0	—	0	4	2	0	..	..	..	..	..	......	None	Recurrence 2 mo. later	......	Negative	....

THE USE OF FLUMERIN IN PATIENTS INTOLERANT TO ARSPHENAMIN OR TO OTHER MERCURIALS

Twelve patients, all of whom had developed arsenical dermatoses or jaundice, or had been unable to take mercury by inunction because of severe stomatitis or cutaneous irritability, were treated with flumerin. In these patients, all lesions were healed and the blood Wassermann reaction was negative as the result of the previous treatment, so that the therapeutic effect of flumerin could not be evaluated. It is only necessary to say that in no instance was there a Wassermann recurrence during flumerin therapy, and that the drug was perfectly tolerated.

REACTIONS FROM FLUMERIN

In our first paper, the reactions observed from the use of this drug were so completely described that it is now necessary only to indicate their incidence in our complete series. This is shown in Table 6. In general, subjective symptoms were mild, but in eight cases, immediate vomiting, bloody diarrhea or stomatitis were of such severity as to interfere with further flumerin therapy. About a third of all the patients treated became salivated and developed mild stomatitis, usually after eight or ten injections of the drug.

Particular interest attached to the renal function findings in patients treated with repeated doses of 4 or 5 mg. per kilogram. So far as could be judged from repeated urine examinations and phenolsulphonephthalein tests, no permanent kidney damage was done, though in this group transient albuminuria or cylindruria was slightly more frequent than in patients treated with 3 mg. or less per kilogram.

RESULTS OF OTHER INVESTIGATORS

As stated in the earlier portion of this paper, a few investigators have been supplied with flumerin, and as the result of their work certain points of interest appear. A small number of patients were treated under the direction of Schamberg. [illegible]ven w small, practically always less than 3 mg. per kilogram, and the doses were spaced at longer intervals than those in our own series. While our patients were treated every other day, or at least twice a week, the interval in Schamberg's series averaged 5.6 days. With this small dosage and long interval between doses, therapeutic effects were slight, and the rapidity of resolution of lesions and the Wassermann response were not comparable to the results in our own series. It is possible to conclude from this result that, if tolerated, the minimum average effective dose of the drug in human beings is 3 mg. per kilogram, and the interval between doses three days, preferably two days.

Fox,[3] at New Haven, also has treated a small series of patients with late syphilis. He has used doses averaging 5 mg. per kilogram twice a week, and finds that in this dosage the drug is well tolerated, particularly with reference to the kidneys. The therapeutic effects are, as might be expected, less than with arsphenamin.

Table 6.—*Reactions from Flumerin*

Dose, Mg. per Kilogram	Total Number of Patients	Total Number of Doses	Immediate Nausea or Vomiting	Cramps or Diarrhea	Stomatitis	Urine Examinations			Phenolsulphonephthalein Output		
						No Change	Existing Abnormalities Cleared up Under Treatment	Transient Albuminuria or Casts During Treatment	No Change	Increased Plus 15 or More	Decreased Minus 15 or More
From 2 to 3 mg.	...	1,058	41 (3.87%)	31 (2.93%)	..	..	..	..	..	..	..
	102	.....	..	..	37 (36.2%)	..	..	..	..	..	..
	77	.....	..	..	..	50	10 (12.9%)	17 (22%)	..	..	..
	61	.....	..	..	..	..	..	..	49	9 (14.7%)	3 (4.9%)
From 4 to 5 mg.	...	122	..	3 (2.2%)	..	..	..	..	..	..	..
	15	.....	..	..	5 (33%)	..	..	..	..	..	..
	15	.....	..	..	..	9	2 (13.3%)	4 (26.6%)	12	3 (20%)	..
Total............	...	1,180	41 (3.47%)	31 (2.88%)	..	..	..	..	..	..	..
	117	.....	..	..	42 (35.9%)	..	..	..	..	..	..
	92	.....	..	..	..	59	12 (13%)	21 (22.8%)	..	..	..
	76	.....	..	..	..	..	..	..	61	12 (15.7%)	3 (3.9%)

SUMMARY OF THERAPEUTIC EFFECT AND REACTIONS FROM FLUMERIN

In man, flumerin is well tolerated in dosage of 5 mg. per kilogram given every other day, though an occasional patient will show signs of intolerance from this or smaller amounts. It is therapeutically active in early and late syphilis in doses of not less than 3 mg. per kilogram, given at least as frequently as twice a week. Smaller doses or longer intervals than this markedly impair the efficaciousness of the drug.

SUGGESTIONS FOR THE APPLICATION OF FLUMERIN TO THE TREATMENT OF SYPHILIS

Though the exact mechanism by which mercury acts in syphilis is not as yet thoroughly understood, it is known that it is but weakly spirocheticidal as compared with arsphenamin. Animal experimentation has demonstrated that for most mercurial preparations, the minimum single dose required to heal syphilitic lesions equals or exceeds the maximum tolerated dose. By contrast, flumerin produces healing of testicular chancres in the rabbit in single dose of 20 mg. per kilogram, and is tolerated in dosage twice as large. Its therapeutic ratio is thus 2:1, an index not equaled by any other mercurial with which we are familiar. The extremely low toxicity of the drug also permits the introduction of a large percentage of metallic mercury, which, as may be seen from Table 7, is more than three times as great in a given time period as is possible with other comparable mercurial salts, whether soluble or insoluble.

Since, in man, saturation with flumerin produces the same signs of intolerance as other mercurials, notably stomatitis and enteritis, and exerts the healing effects detailed on the lesions of syphilis, it is fair to assume that its general pharmacologic action is that of mercury. Its field of usefulness is therefore the same as for other mercurials, with the additional advantage of its higher therapeutic ratio.

While it is obvious that flumerin is not the equal of any of the arsphenamin group, and that it cannot replace them, the qualities enumerated for it suggest its place in syphilotherapy. By virtue of its superior spirocheticidal activity, its major field would seem to be complementary to arsphenamin in the treatment of primary and secondary syphilis. At this stage of the infection we are faced with a situation which demands the utmost in destruction of organisms, combined with the maximum conservation and stimulation of the patient's defense mechanism. Furthermore, it is at this time only that a cure, in the sense of radical destruction of all organisms, may be obtained. Later in the course

Table 7.—*Amount of Metallic Mercury in Therapeutic Doses of Flumerin and Other Mercurials*

Drug	Mercury Content, per Cent.	Average Therapeutic Dose, Mg. per Kilogram	Average Therapeutic Dose, Gm.	Metallic Mercury in Average Therapeutic Dose, Mg.	Amount of Metallic Mercury Given in Average Week, Mg.
Mercuric cyanid.......	79	0.33	0.02	15.8	94.8
Mercuric oxycyanid...	85	0.165	0.01	8.5	51.0
Mercuric benzoate.....	45	0.33	0.02	9.0	54.0
Mercuric chlorid.......	74	0.33	0.02	14.8	88.8
Mercuric succinimid...	54	0.25	0.015	8.1	48.6
Red mercuric iodid....	44	0.25	0.015	6.6	39.6
Mild mercurous chlorid (calomel)............	85	0.75	0.045	38.2	38.2
Mercurial (gray) oil*..	100	1.5	0.09	90.0	90.0
Mercuric salicylate....	54-59.5	1.5	0.09	53.1	53.1
Flumerin..............	33	5.0	0.25-0.3	100.0	300.0

* The therapeutic dose of mercurial oil is expressed in terms of metallic mercury.

of the infection our utmost achievement is clinical arrest of the disease process.

No patient with early syphilis should be given flumerin until after the usual course of arsphenamin has been administered. Nor should the two drugs be used simultaneously. For reasons chiefly related to the biologic course of syphilitic infection, we are opposed to the intermittent plan of treatment for early syphilis, this plan implying the combined use of arsphenamin and mercury separated by rest periods. Our plan of use for flumerin, therefore, is that it shall be applied as interim continuous treatment, to be given between courses of arsphenamin. Even the iodids should not be used simultaneously with flumerin because of the theoretical possibility of enhancing its toxicity by the formation of a halogen mercurial compound in the body.

In early syphilis, then, we would advise a course of treatment somewhat as follows: arsphenamin for eight doses at the usual intervals of five to seven days, followed a week after the last dose of arsphenamin by a series of flumerin injections given every other day, the first two doses of 3 mg. per kilogram, then two of 4 mg., and then eight of 5 mg. per kilogram. Immediately at the completion of flumerin treatment, a second series of six injections of arsphenamin must be given, again followed in one week by a second series of sixteen injections of flumerin. This type of alternating treatment with arsphenamin and flumerin should be continued until the usual criteria of cure are fulfilled (one full year's treatment after permanently negative serologic findings of the blood and spinal fluid are obtained).

The dosage of 5 mg. per kilogram should not be exceeded, nor should the two or three day interval between doses be shortened unless the functional condition of the patient's kidneys is under accurate control. It is considered advisable to reach this level of dosage if possible, but a strict insistence on the application to man of the minimum curative dose in animals is unnecessary. Not only have we obtained almost as satisfactory therapeutic results, as shown by a study of our tables, with a dosage of 3 mg. per kilogram as with the larger doses, but in human syphilis the end to be attained with mercury is fundamentally different from that in animal experimentation.

It is obvious that this suggested plan of treatment calls for a considerable sacrifice of time (and inevitably of money) on the part of the patient. Such sacrifice should not be demanded by the physician unless the therapeutic gain is adequate. For any given patient, the ideal plan of treatment for syphilis is that which combines maximum therapeutic possibilities with economy of time and money. We believe that in early syphilis, the advantages of flumerin therapy outweigh the economic consideration. In late syphilis, on the contrary, this situation does not so definitely obtain. We therefore do not advise the routine use of flumerin in this stage of the infection, preferring to leave its application to the necessities of the individual case. In neurosyphilis and in resistant syphilis in general, we feel that little more is to be expected of flumerin than of other active mercurials. Flumerin may be expected to prove of value in arsphenamin-intolerant patients, notably those having had reactions of the dermatitis group. In our hands, furthermore, good results have been obtained in a small number of patients who failed to tolerate mercury by other routes.

The field of application of flumerin to antisyphilitic therapy is thus limited at present by the physical properties of the drug and the necessity of using it by the intravenous route. Studies at present in progress of its toxicity and rate of absorption and excretion when administered by the intramuscular route may later considerably widen its applicability. For the present, there are not sufficient data available to warrant the administration of flumerin by the intramuscular route.

THE DIAGNOSIS OF DIABETIC COMA*

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Unconsciousness in a patient who has sugar in the urine demands prompt use of the physician's utmost diagnostic skill, (1) to avoid hasty and harmful injection of insulin in unsuitable cases; (2) to adjust treatment to both diabetes and probable complications; (3) to protect the rights of the patient's family, and (4) to improve our knowledge of diabetes by more accurate tabulation of statistics.

The term "diabetic coma" should be reserved for unconsciousness (not mere drowsiness) due to diabetic acidosis. It is characterized clinically by "air hunger" (Kussmaul respiration), and chemically by an excess in blood and urine of sugar and of the end-products of faulty fat metabolism (the acetone bodies). Absence of any of these symptoms implies that the unconsciousness is not due solely to true diabetic acidosis, and that therefore it cannot be safely treated with large doses of insulin.

A gradual, not a sudden, onset characterizes uncomplicated diabetic coma. During the week preceding, such symptoms as anorexia, headache, abdominal cramps, weakness, nausea, vomiting, constipation and difficult breathing will have been present; these signs, though neglected by family and friends, can always be elicited on careful inquiry. The precipitating cause of these symptoms frequently appears to be a nervous upset or unusual exertion, but the real cause is always dietary error. The respiratory difficulty may have been noticed only occasionally during this prodromal period, with a definite increase during the few hours preceding unconsciousness. On examination, the deep, rapid respiration with exaggerated inspiratory effort, the dry skin and mouth, cold extremities, subnormal temperature, rapid pulse and soft eyeballs are immediately noted. The cheeks may be flushed, and at times an acetone odor may be detected on the breath. Flushed cheeks and a warm skin, when present, usually are seen in the prodromal stage before true coma has appeared. Shallow and feeble respiration succeeds "air hunger" as exhaustion progresses. A catheter specimen of urine and, when facilities are available for analysis, a blood sample also should be obtained immediately. Usually the percentage of sugar in the urine is but moderate, ranging from 1 to 3 per cent., whereas the blood sugar is relatively higher, ranging from 0.4 to 0.8 per cent. The urine gives a maximum red-black test with any ferric chlorid solution (preferably 30 per cent.) unless retention of ketone bodies has occurred. The carbon dioxid combining power of the blood plasma is usually below 15 per cent. by volume; when above 30 per cent. by volume, it betrays either a complication or the previous administration of alkali. The diagnosis becomes puzzling when these signs are obscured, or are complicated by the presence of other factors; it is then essential for the physician to consider other conditions that may produce unconsciousness.

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* From the Diabetic Clinic, New England Deaconess Hospital.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis is often rendered difficult by the fact that in cases of severe diabetes the temperature, pulse rate and leukocyte count may not reflect so promptly or so clearly the existence of infection. In a patient whose usual temperature range is from 97 to 97.6 F., a temperature of 98.6 is equivalent to 100.4 in a normal person. Fever is not a symptom of diabetic coma; its presence indicates a complication. In most instances the differential diagnosis of the causes of unconsciousness in a diabetic patient lies between the following conditions:

1. Hypoglycemia in a diabetic patient may be due either (*a*) to inanition when no insulin has been given, or (*b*) to an overdose of insulin. The hypoglycemia of inanition usually follows a marked restriction of diet. Doses of insulin as low as one unit have been known to produce hypoglycemia. In either case the urine is free from sugar, the blood sugar below 0.06 per cent., the pulse rapid and weak, the pupils dilated, the face and arms moist with a cold sweat. Convulsions may occur, especially in children. Sugar immediately administered by stomach tube or glucose given intravenously cures, whereas insulin kills.

2. The onset of acute infection (such as otitis media) and gastro-intestinal disturbances are the chief causes of unconsciousness in children under 5 years of age. The presence of fever and the absence of the criteria mentioned require other explanation than that of diabetic coma.

3. Septicemia must be considered in any diabetic patient with severe acidosis, who has fever. A blood culture must always be taken. This applies with special force when a known focus of infection is present, such as a carbuncle, gangrene or an infected wound. Septicemia may originate in an infected tooth root or a paronychia as well as in a carbuncle, and may be the precipitating cause of true diabetic coma. Often, however, the acidosis resulting from the infection is not sufficient to cause coma, and the real cause of the patient's comatose state is septicemia due to staphylococcus or streptococcus infection. The diagnosis depends on the presence of a septic temperature, leukocytosis, petechiae in the skin, subconjunctival hemorrhages, metastases to joints, lungs and endocardium, and the results of repeated blood cultures.

The recognition of septicemia in such cases may protect important rights of the patient and his family. In a recent case at the New England Deaconess Hospital, trauma of the thigh had been followed by severe acidosis and fever. The recovery of hemolytic streptococci from blood cultures taken on admission, and the disappearance of acidosis under treatment, demonstrated that the patient's death was due to septicemia resulting from accident and not to diabetic coma, with the result that his family received compensation for his accident insurance policy. Death from septicemia consequent on an infected wound is death from accident; death from diabetic coma is death from disease.

4. Meningitis and encephalitis usually give evidences of irritation of the central nervous system. The history of headache, dizziness and drowsiness for a week or more, fever, pupillary changes, nystagmus, paralysis, stiff neck, reflex changes and stertorous respiration rather than "air hunger" indicate lumbar puncture and settle the diagnosis. A known diabetic patient, admitted to the New England Deaconess Hospital for treatment of diabetic coma, had a small abscess on the scalp which had been opened and drained several weeks previously. During the night before admission he was found comatose, with sugar and diacetic acid in the urine. Here the laboratory helped much. With a plasma carbon dioxid combining power of 46 per cent. by volume, diabetic coma was out of the question. Lumbar puncture revealed a purulent spinal fluid due to a streptococcus meningitis.

5. Uremia is bound to occur with increasing frequency among diabetic patients, because such persons are living to enter the uremic zone of old age. The history of chronic nephritis or prostatic obstruction, the presence of convulsions, the nephritic pallor, uremic odor, oliguria, albuminuric retinitis and, most important of all, nitrogen retention in the blood serve to distinguish it, as do likewise the absence of excessive quantities of diacetic acid in the urine or acetone in the blood. The nonprotein nitrogen of the blood in diabetic coma rarely exceeds 65 mg. per hundred cubic centimeters, but is seldom less than 100 mg. per hundred cubic centimeters in uremia. The blood sugar, however, may rise to 0.30 or 0.60 per cent. in the diabetic patient with uremia.

6. Cerebral hemorrhage, thrombosis or embolism occur suddenly, with resultant paralysis. Usually unilateral spasticity or flaccidity give the clue. In the aged, a series of vascular accidents may have preceded the present illness.

7. A brain tumor may prove most deceptive. A history of headache, dizziness, slowly progressing loss of sight or hearing, a tendency to fall to one side, and mental changes, together with choked disk, Cheyne-Stokes rather than the air hunger type of respiration, and abnormal reflexes will differentiate the condition from diabetic coma.

8. Epilepsy is extraordinarily rare among diabetic patients, but epileptic convulsions may cause the appearance of small amounts of sugar in the urine of a nondiabetic person.

9. Narcotic poisoning is distinguished chiefly by means of the history, the slow respiration, and the absence of ketonuria and lowered plasma bicarbonate. The pin-point pupils of poisoning by opium or its derivatives, and the odor of chloral or alcohol are helpful diagnostically, but the needle puncture marks of drug habitués must not be confused with those resulting from the use of insulin. Needle marks so situated that the injections could only have been made by another person, together with marked induration of the skin, suggest insulin rather than morphin.

10. Trauma with concussion of the brain or a fractured skull is mentioned as a reminder that a patient found unconscious with sugar and diacetic acid in the urine is not necessarily suffering from diabetic coma. Bleeding from ears or nose, wounds of the scalp, roentgen ray and blood chemistry differentiate the conditions.

Success in untangling the diagnostic snarl surrounding the unconscious diabetic patient may save his life, protect his rights, and increase knowledge of the causes of diabetic mortality.

The Percentage of Criminals.—Hardly any one knows that about 2 per cent. of the community is constantly criminal the world over, and that no matter what we do, no appreciable effect has ever been produced on this average of criminality. —Hoag: Crime, Abnormal Minds and the Law, Indianapolis, 1923.

ORBITAL CHANGES PRODUCED BY RADIUM IN CANCER OF THE UPPER JAW *

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It is now quite customary to supplement the operative treatment of cancer of the upper jaw by the application of radium. As a result of the radium application, definite changes may occur in the orbit and affect the eyeball. These changes, aside from deleterious action on the eyeball, suggest extension of the malignant growth, and the question then arises whether the orbit and its contents should be exenterated or not.

It seemed, therefore, of importance to study the condition in the orbit which radium produces when applied in the treatment of tumors of the upper jaw, and to compare this with the neoplastic involvement of the orbit in the course of tumors of the upper jaw.

The following five cases of orbital involvement after radium treatment present certain features which bear on this question.

REPORT OF CASES

Case 1.—E. J. B., aged 61, had been operated on for carcinoma of the upper jaw and then treated with radium, which was followed by diplopia, and the left eye had been red for six weeks. The inferior rectus involvement was increasing. The recurrence in the upper wall of the antrum had been noted by the attending rhinologist, and the question of exenteration of the orbit was raised. The patient was seen by me, Jan. 6, 1920, by the courtesy of Dr. Alexander Duane of New York. The vision in the left eye was 6/8. All muscles were paralyzed except for some motility up and out. Examination revealed: exophthalmos, left, 17; right, 15; ciliary congestion; pupil moderately dilated; field contracted below; optic nerve, normal. In the upper part of the fundus there was a sharply defined, round detachment which was translucent in places. Six weeks later the condition was much better. There was no congestion; motility had returned inward; up and down was abolished. Exophthalmos was: left, 15½; right, 15. The interior showed no detachment, with pigment changes outlining the margin of the old detachment. Four months later, lateral motility was restored; the patient could move the eye slightly upward; there was complete paralysis of downward motion.

Case 2.—I. M., aged 40, had been operated on at the Mayo Clinic for sarcoma of the left antrum. Radium was applied, Feb. 17 and March 20, 1922. Six weeks before I saw the patient the left eye became red, and sight was affected. The patient was seen by me, May 25. The left eye was totally blind. The lids were closed, red and swollen. The eye was fixed, bulging forward and out. The pupil was dilated; there was no light perception. The fundus showed the picture of embolism, with exudation in the deeper layers of the retina about the nerve head. The retinal veins were dilated, and were surrounded by hemorrhages; some of the vessels showed distinct interruption. There was a cherry spot at the macula. The margin of the disk was blurred with a grayish-white exudate, which extended upward under the retina; at the same time, no particular elevation was to be noted. There was a very definite mass to be felt along the orbital margin down and out. There was an opening in the canine fossa which contained packing. June 6, the eyeball was excised because of pain. The conjunctiva was very difficult to dissect, as it was thickened and adherent. The eyeball was firmly attached to the surrounding tissues, particularly below and throughout the entire posterior half. It was not possible to rotate the eye, and this made dissection very difficult, with the result that the eye collapsed, evidently being cut into. The parts posterior to the eyeball were transformed into a dense tumor mass obliterating the optic nerve. There was a large gap down and in, in Tenon's capsule, about 3 by 2.5 cm., which communicated with a cavity in the ethmoid cells and antrum, a large sloughy opening extended through the sclera, opening into the eyeball and coinciding with the gap in Tenon's capsule. An intensely putrid, greenish material and a piece of bone were removed.

Case 3.—M. H., aged 70, had been operated on for a carcinoma of the antrum, and radium had been applied both externally and in the antrum. The upper bony wall was found defective in the roentgenogram. The treatment was followed by the usual swelling of the orbit. The eye appeared well except for constant pain. The swelling then went down gradually. One week before I saw the patient there was more exophthalmos, and an exudate appeared in the anterior chamber. The patient was seen by me, July 1, 1920, through the courtesy of Dr. Quick of New York. The skin of the lids was red and swollen. There was a very tender periosteal swelling along the orbital floor; there was exophthalmos; the anterior chamber was filled with a purulent exudate; the cornea was intact. Three days later a small perforation occurred about 4 mm. down and in, in the sclera, which discharged pus freely. Subsequently the pain became severe. The sloughy scleral flap that presented itself below was cut away; there was an intensely fetid odor. The cornea then sloughed out. July 7, an evisceration was performed. Purulently infiltrated chunks of tissue were cut away, and the sclera was dissected out piecemeal, adherent to the tissues about a large opening below, leading into the antrum.

Case 4.—F. J., aged 61, had had a tumor of the antrum removed by operation, and radium had been applied. Six weeks before I saw the patient the left eye began to swell; recently this swelling had increased. The patient was seen by me, Feb. 6, 1922. The left eye was pushed forward and up, with restricted motility, especially downward; there was edema of the lids and of the conjunctiva below. Within the lower orbital margin a diffuse mass could be felt. The pupil reacted to light; the eyeground was normal. June 29, 1922, there was less swelling; motility was better; there was nasal swelling of the left optic disk. The right optic nerve was normal. The swelling ultimately went down entirely, and the eye became normal.

Case 5.—M. S. S., aged 47, had been treated four years before by the late Dr. Henry H. Janeway for carcinoma of the antrum by operation and radium. Six weeks before I saw the patient, the latter returned to the General Memorial Hospital with the eye distinctly elevated and slightly bulging, which Dr. Quick regarded as due to a probable tumor extension, as, on examination of the antrum, there was a definite involvement of the upper wall. No thickening of the orbital floor could be felt. Radium was applied both internally and externally, Jan. 23 and 24, 1923. This was followed by a tremendous reaction: swelling of the lids; swelling of the floor of the orbit, and restricted motility of the eye. March 14, I was able to examine the patient, and found a general redness of the lids and adjoining cheek, with diffuse thickening of the periosteum along the floor. Motility downward was abolished and restricted upward to a moderate degree. The eyeball was normal.

COMMENT

The neoplastic involvement of the orbit in the progress of tumors of the superior maxilla is quite different from the symptoms observed in these five cases. With the kind assistance of Dr. W. S. Stone of New York, I went over the histories of tumors of the superior maxilla which have been observed at the General Memorial Hospital, New York. In the cases in which the patients are living, the orbit was not involved in twenty-four and was involved in twelve. In the cases in which the patients died, the orbit was involved in thirteen and was not involved in eigh [illegible] involvement of the orbit, while it is freq [illegible] termin stages of the disease when it is d [illegible] y wh

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

the tumor originated, is infrequent in the early cases, and then occurs, according to Drs. Quick and Coakley, through the inner or nasal wall, or posteriorly through the floor. Inflammatory symptoms are absent, and the ocular muscle paralyses are not marked.

The swelling anteriorly, when radium has been applied, is different from the usual tumor growth and presents definite inflammatory symptoms, such as redness and edema of the lids, a diffuse thickening of the orbital floor, an involvement of the ocular muscles and especially of the inferior rectus, ciliary congestion of the eyeball, detachment of the retina, and optic neuritis. A necrotic process may extend in the orbit to the eyeball, causing a slough of the sclera, panophthalmitis, and destruction of the eyeball. Infection is here undoubtedly a factor, and is especially liable to occur when radium is applied near bone tissue, which is so easily devitalized; necrosis results, and infection cannot then be prevented. It must be borne in mind that the effects of radium—that is, of the gamma rays—are long deferred, for weeks and even for months.

The reaction of the orbital structures to radium seems to vary in degree, according to whether the bony floor is intact or not, and the symptoms are quite different from those caused by the usual extension of the neoplastic process, arising in the upper jaw.

It is necessary to use the destructive or caustic effects of the radium in these cases, as the results of radium treatment combined with operation seem definitely to be better than those by surgery alone; yet, the possible ultimate deleterious action of radium on the orbit and eye should not be overlooked.

10 East Fifty-Fourth Street.

ABSTRACT OF DISCUSSION

Dr. George H. Kress, Los Angeles: Apropos of Dr. Knapp's comments on some of the dangers in the use of radium, I will report a case, coming under my own observation, which had a most deplorable end-result. A man, aged 45, presented himself because of four large succulent pterygia, two on each eye, advancing over the corneal tissue. My associate in the eye service of the hospital did McReynolds transplantation operations upward. Before the end of the year, there had been a recurrence, and the man, coming to my service, I did a McReynolds transplantation operation downward. When I returned to service, in about eight months, the patient again presented himself, the four pterygia seemingly being larger and more succulent and more fibrous appearing than ever. Before resorting to skin grafting or similar measures, we decided to obtain the opinion of the attending radiologist at the hospital, to learn whether or not, in his opinion, radium might have a deterrent influence on these recurring growths. He advised its use, and gave the patient one single exposure to the two eyes, of minimum dosage and under proper precautions. Within a few days a bilateral uveitis set in, which was resistant to all methods of treatment. The left eye became altogether blind and was most sensitive and painful, and an enucleation was necessary. After the enucleation, the symptoms in the right eye subsided somewhat, but the visual acuity was reduced to about 6/20, and the eye still remains sensitive to light and gives the patient much distress. The two pterygia on this eye have not returned. The end-result in this case would tend to emphasize the points brought out in Dr. Knapp's paper concerning the dangers incident to the use of radium in the eyes, and the need of the utmost precaution in minimum dosage, and other precautions in case its use is decided on.

Dr. Phillip C. Means, Santa Barbara, Calif.: I tried radium in what proved to be a hopeless case—cancer of the antrum, in a woman weighing 90 pounds (41 kg.), with a bad heart, and who wished to die, which makes a rather discouraging prognosis. We used 25 milliamperes for forty-eight hours twice in this case. Fifty milliamperes would have been better. Does Dr. Knapp find that shutting out the secondary rays by screening with rubber changes the effect on the connective tissue? Our roentgenologist said that we need not fear the effect on the bone. When this woman died, with an extreme necrosis and infection of the eyeball and the whole contents of the eye socket, there was necrosis not only through the floor of the orbit, but through the floor of the mouth, due to the cancer and not the radium. The use of radium in this case I believe saved the patient a great deal of suffering, as only two or three injections of morphin were necessary in a long drawn out fatal ending. She was not particularly susceptible to pain, but the pain in this case was not what we usually expect in such cases.

Dr. Allen Greenwood, Boston: These cases are not common. I have under my care a patient who is being treated by radium following an operation for carcinoma of the antrum. We can tell pretty nearly the effect of radium treatment on him by the amount of prism it takes to correct the imbalance of the inferior rectus muscle. He has five or six pairs of glasses with a different strength of prism. He wears one strength awhile and then, after a treatment, the inferior rectus is so disturbed that it takes a double strength of prism to give him comfortable binocular vision. It looks as though the radium was disturbing him more than his original disease.

Dr. Edward Jackson, Denver: Although these cases are rare, when they arise they are extremely important and the issues are very grave. Many years ago it was pointed out that a case of malignant disease invading the orbit from neighboring cavities was not a good case for operation; that, in general, the patient would live longer, if not subjected to an operation. So, there is a disposition in such cases to rely more on radium in this region than elsewhere. Radium and the roentgen rays also have been regarded with suspicion, and they have been used with caution for fear of their effect on the highly differentiated tissues of the eyeball. Experience seems to show that it is not very dangerous to such tissues as the retina and the lens. But in this group particularly a good deal of evidence would seem to show that radium is extremely dangerous to bone and to the biologic line of connective tissues. Without any complete history of these cases that have been brought before us today, it looks from the symptoms, the course and the gross conditions that were observed that this is a matter of damage to the bone and connective tissue, and possibly the tendons.

Dr. W. H. Wilder, Chicago: I should like to ask Dr. Knapp whether or not in the cases he reported there was much pain and suffering, as there is so frequently when the fifth nerve is involved by cancer of the jaw or cheek, and whether or not the application of radium relieved this pain. On this may depend somewhat our determination to use it. Such a cancer is a deadly thing, and if we can merely relieve the suffering of the patient it is worth something. The reason I ask is that some of my gynecologic friends who use radium a great deal in malignant conditions of the uterus assert most positively that, while it may not cure, it sometimes checks the growth to a certain extent, and does reduce the great suffering and marked hemorrhage that are likely to occur. If we could relieve the pain in a disease that is almost necessarily fatal, we should be accomplishing something, even if the eye should be lost in the process.

Dr. George McCoy, Los Angeles: In a case of cancer of the eyeball that started in the lids, the patient received roentgen-ray and radium treatment in Los Angeles and also in New York. He went to Denmark and received some treatment there. Later he came to San Francisco and received radium treatment. The lids were burned so that they could not open or close. There occurred an ulcer of the cornea, a hypopyon, and he agreed to have the orbit exenterated. We took out the eye, the inner wall of the orbit, the upper wall of the antrum and the sac. The cancer went on for about three and a half years. It ate out the bony wall so that one could see the pulsations of the brain above. The patient died. That patient sought relief for his pain by radium. He would come up to San Francisco, make the trip with his nurse and go back, because he said that for a few days he felt worse, but after that the pain was relieved. In another case there appeared what we diagnosed as epithelioma of the cornea, with a history of a pterygium that had been there for several months. This was removed completely, and the conjunctiva brought over. Also the upper portion of the cornea was dissected away. The laboratory made a diagnosis of epithelioma. Radium was used. The eyeball was burned and cataract developed, and there was increased tension. This was done about a year and a half ago. He still has increased tension, but very little distress.

Dr. R. W. Miller, Los Angeles: A man, aged about 50, in ordinarily good health, came because of what he conceived to be nasal catarrh. He had a small, open sore just to the nasal side of the area corresponding to the site of the left infra-orbital nerve. The left naris, ethmoid area and antrum were practically filled with necrosed bone, polypi and degenerated tissues. My pathologist reported that carcinoma was present. The diseased structures were removed, as far as practicable, and the case referred for radium treatment. This was carried on through the naris and the fistula which soon formed in the anterior antral wall. The origin of the growth seemed to be in the left antrum. There was decided reaction and some pain following soon after the treatments, but most of the time the patient reported only moderate pain and felt that the treatment gave marked relief. The diseased tissues were much reduced in volume, and for a time the outlook for recovery seemed good. So well was the pain controlled that no opium derivative was required at any time in the course of the disease. It is noteworthy that there were no ocular symptoms worthy of mention, the vision remaining good, and no fundus changes were noticeable. The patient became more and more emaciated, and died of asthenia ten months from the time I first saw him. I neither saw nor heard from him for about two weeks until the day prior to his death. He had not been able to retain any food for several days, was subcomatose, and the abdomen was greatly retracted. Metastasis to the abdomen was suspected, but a necropsy was not permitted.

Dr. Arnold Knapp, New York: In answer to Dr. Means, the radium was applied unfiltered. Answering Dr. Greenwood, it may be interesting to say that in these cases the paralysis of the inferior rectus persisted. As to pain, in the mild cases apparently there was not much suffering, but in the two cases of panophthalmitis there was a great deal of pain, which seemed out of proportion to the amount of ocular inflammation.

CLINICAL EXPERIENCES WITH ETHYLENE-OXYGEN ANESTHESIA *

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Several months ago, a preliminary report was published on the use of ethylene gas as an anesthetic in a series of 106 operative cases.[1] A previous report presented a rather detailed study of the physiologic action of the gas on the usual laboratory animals, including a number of normal men.[2] Since that time the number of operations performed at the Presbyterian Hospital, Chicago, has risen to some 800. In the preliminary communication on the clinical phases of the work, certain important facts received no mention at all, and others were ascertained only as the work progressed. Our attention was furthermore called [3] to some earlier literature on ethylene which we had overlooked in spite of what we considered a thorough search.[4] These reasons have prompted us to issue this report.

LITERATURE

Before presenting the reader with a brief chronological report on the real and alleged studies on the physiologic properties of ethylene, we emphasize the fact that the problem presented itself to us as reported in our first communication, and that it was completed without the slightest knowledge that any one had ever worked on the subject before. We welcome this opportunity to give credit to whomsoever it is due.

Preparation of Ethylene.—Whereas in a Latin text (Physica subterannea) Becker is credited with first generating ethylene, Priestly in his "Observations and Experiments relating to Various Branches of Natural Philosophy" refers in 1779 to Ingenhouss as the first man to generate ethylene. In 1781 it was prepared and its chemical and physical properties studied by Deimann, Paets, van Troostwayk, Bondt and Lauwerenbusch (1795). Berzelius prepared it and called it "elayl." [5]

Physiologic Properties.—According to Foy,[6] Mr. Thomas Numely used olefiant gas (i. e., ethylene) in 1849 in one midwifery case (rigid os) and in three other cases (malignant tumor, section of the adductors of the thigh, section of the inner hamstring muscles), but that subsequent practices showed that "continued inhalations produced dilatation of the pupils, muscular relaxation, vomiting, and death." In a brief unsigned article in the *Medical Press* [7] appears a similar statement:

> Simpson recognized its [i. e., ethylene's] anesthetic properties, but considered it too irritating to the mucous membranes to allow of its use in surgery. Mr. Nunneley, of Leeds, employed it as an anesthetic in many operative cases and from using a more pure chemical, did not find its irritating properties pronounced. It causes when inhaled less excitement than ether; it acts as a cardiovascular depressant and in overdoses produces death by centric respiratory paralysis. Its high price is a barrier to its general use.

A closer inspection of the literature, however, revealed that Foy had misquoted both the name of the investigator and the facts. In a letter to the editor,[8] Mr. Thomas Nunneley (not Numeley) of Leeds reports that he wishes to mention two anesthetics with which he had been experimenting, namely, "common coal gas" and the "chloride of olefiant gas" also known as the "hydrochlorate of chloride of acetyle," or "oil of olefiant gas," formerly called "Dutch oil" or the "oil of the Dutch chemists"—so called because Dutch chemists were the first to prepare and study in detail the properties of olefiant gas, which, when mixed with equal volumes of chlorin gas, produced the compound which Mr. Nunneley used. In another letter,[9] Mr. Nunneley acknowledges the receipt of a letter from Simpson and a pamphlet from Dr. Snow to the effect that both had used "Dutch liquid" as an anesthetic agent before him. He states, however, that he does not find the substance irritating, as described by Simpson. In a final letter to the editor,[10] Nunneley mentions using ethylene chlorid (Dutch liquid, elayl chlorid, S-dichlorethane) in the four cases misquoted by Foy. As late as last year (1922) Hewitt-Robinson [11] perpetuate this error by writing: "Ethylene or olefiant gas was administered by Nunneley of Leeds in 1849 to four patients; but it was found to be unsatisfactory in its action."

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* From the Hull Laboratory of Physiology, University of Chicago, and the Presbyterian Hospital.

[1] Luckhardt, A. B., and Carter, J. B.: Ethylene as a Gas Anesthetic: Preliminary Communication, J. A. M. A. **80**: 1440 (May 19) 1923.

[2] Luckhardt, A. B., and Carter, J. B.: The Physiologic Effects of Ethylene, a New Gas Anesthetic, J. A. M. A. **80**: 765 (March 17) 1923.

[3] New Anesthetics: Ethylene and Acetylene, editorial, J. A. M. A. **80**: 1383 (May 12) 1923.

[4] Luckhardt, A. B., and Carter, J. B.: New Anesthetics: Ethylene and Acetylene, J. A. M. A. **80**: 1476 (May 19) 1923.

[5] Mayer and Jacobson: Lehrbuch der organischen Chemie, Leipzig, 1907, p. 836.

[6] Foy, George: Anesthetics, Ancient and Modern, London, 1889, p. 70.

[7] M. Press, Aug. 10, 1921, p. 103, under "Current Topics."

[8] *Prov. M. & S. J., Feb. 12, 1849, p. 98.*

[9] Prov. M. & S. J., Leeds, March 2, 1849, p. 138.

[10] Anesthetic Effects of Chloride of Olefiant Gas, P[illegible] M. & S. J., March 5, 1849, p. 166.

[11] Hewitt: Anesthetics and Their A[illegible] Robinsen, London, 1922, p. 21.

A careful search through the writings of Simpson[12] revealed that he had never used ethylene gas itself but, among other "volatile chemical liquids," the chloride of hydro-carbon" or Dutch liquid, called for a time "chloride ether," produced by allowing "equal parts of olefiant gas and chlorine" to interact with the formation of a "colorless oily liquid of peculiar sweetish taste and ethereal odor."

There is, therefore, no available evidence that ethylene gas itself was ever used in operative work as an anesthetic agent by either Nunneley or Simpson. In fact, Nunneley, in a large article whose comprehensive title[13] indicates accurately the nature of his inquiries, mentions thirty-seven compounds whose anesthetic action he studied on the lower animals. In this research he records eight experiments with olefiant gas (four kittens, two cats and two young dogs). The animals are described as "sleepy but with appearance of uneasiness," "breathing rather laborious," "struggled hard," "irregular breathing and convulsion, without, however, altogether losing sensation," "cried out and was distressed." Those being by far the most common findings recorded in his protocols, it was natural for him to conclude that olefiant gas "is not one of those which are likely to be used in practice. Not only would there be difficulty and trouble in preparing and preserving it, but it is not a safe and manageable agent; since, when employed in innocuous doses, the anesthetic is not complete; when used in large doses, death may not improbably be caused. Ten per cent. of the gas does not appear to produce such a degree of insensibility of any permanence as could be depended upon in a painful operation of even a moderate length; fifteen per cent., though causing total insensibility, also induces a dangerous condition, while life is speedily destroyed by from 20 to 25 per cent." In his final appraisal of the thirty-seven compounds which, in his opinion, merit further use, he mentions sulphuric ether, coal gas, chloric ether, hydrobromic ether, chloroform, chlorid of carbon and chlorid of olefiant gas. The last mentioned was used extensively by him in his operative work.

In the next to the last paragraph of a moderately long article on nitrous oxid gas, Hermann[14] mentions the fact that he had inhaled olefiant gas as well as other gases in order to note their effect on the sensorium. He states that he prefers to report his results later, but speaks of the gas having a narcotic action. He does, however, warn against the danger of the presence of carbon monoxid, and states that he himself was in a dangerous condition because of the inhalation of such impure gas. Ten years later (1874) he[15] simply states, without giving any data, that ethylene gas is feebly intoxicating (schwach berauschend), on the order of nitrous oxid. He likewise repeats the statement that he once was in a precarious condition because of a contamination with carbon monoxid.

Two years later, Eulenberg[16] quotes Müller to the effect that ethylene causes dizziness, nausea and fainting, and that in large concentrations it causes death due to apoplexy. He also quotes Davy as stating that a mixture of two volumes of ethylene and three volumes of air causes dizziness, headache, and a passing weakness of the extremities. Eulenberg himself denies toxic properties on animals except in concentrations of 30 per cent. ethylene and 70 per cent. air, when he noticed difficult breathing and death. In this concentration one rabbit showed after a short period of excitement a slowing of the respiration with a slight drunken condition; another, a slight anesthesia. A 1 to 3 per cent. ethylene-air mixture induced anesthesia in a pigeon; a 30 per cent. ethylene-air mixture killed the bird.

In 1885, Luessem[17] used a 75 per cent. ethylene-oxygen mixture on frogs, rabbits and one canary, with fatal outcome in several instances, presumably due to the presence of carbon monoxid. After laborious purification, he put two dogs and one guinea-pig to sleep with an 80 per cent. ethylene-oxygen mixture. He himself inhaled this mixture. After five minutes he experienced a slight sense of pressure in the head, somnolence, and increase in pulse rate from 80 to 84 Eighteen minutes later he noted weakness in the arms and legs, vertigo, and an uncertainty of gait, with rapid recovery on breathing air.[18] In weaker concentrations he noted similar but less pronounced effects. He concludes that a 70 to 80 per cent. ethylene-oxygen mixture produces after a variable period of excitement a "sleep which cannot be interrupted by auditory stimuli." No reference is made to its analgesic properties or to its possible use in surgery as a general anesthetic agent.

In the ensuing thirty-three years (1885 to 1918) no further work was done on ethylene gas. In that year Luckhardt and Thompson,[19] independently and without knowledge of the preceding work just reported, established on frogs, rats and on one dog not only the anesthetizing but also the analgesic properties of ethylene gas when administered in a mixture of 80 per cent. ethylene and 20 per cent. oxygen.

The preceding year, Cotton[20] reported work purporting to show that ethylenated ether had powerful anesthetizing and analgesic properties. In fact, Cotton expressed the conviction, since disproved by Stehle and Bourne,[21] and more recently by Dale, Hadfield and King, that absolute ether possessed no anesthetic action. In 1919, however, Cotton[22] seemed to ascribe the value of ether as an anesthetic agent to powerful synergists other than ethylene, for he writes: "Ethylene was made by textbook methods and added to absolute ether. It transformed absolute ether into a moderately good anesthetic, but the results were not comparable with those previously obtained; in fact, such ether was by no means as good as Squibb's. However, with careful synthesizing and research, anesthetic synergists of exceedingly high value and potency were finally obtained." What these synergists are Cotton does not state in this article. The inference is that they are present in Cotton-process ether.

In August, 1922, Luckhardt and Carter[2] finished the work on the physiologic properties of ethylene gas on frogs, white mice, white rats, guinea-pigs, rabbits and dogs.

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[12] Simpson, W. G.: Anesthesia, Hospitalism, Hermaphroditism, etc., New York, D. Appleton & Co.; 1872, pp. 165-166.

[13] Nunneley, Thomas: On Anesthesia and Anesthetic Substances Generally. Being an Experimental Inquiry into Their Nature, Properties and Action. Their Comparative Value and Danger and the Best Means of Counteracting the Effect of an Overdose, Tr. Prov. M. & S. As., London, 1849, pp. 167-381. The reader may be interested in the nature of some of the compounds tested by Nunneley for their anesthetic action: aldehyd, iodoform, coal gas, benzol, camphor, naphtha, oil of turpentine, creosote, protoxid of nitrogen, hydrocyanic acid, conein, carbonic oxid, sulphuretted hydrogen and bisulphuret of carbon.

[14] Hermann, L.: Ueber die physiologische Wirkungen des Stickstoffoxydulgases, Arch. f. Anat. u. Physiol., 1864, p. 521.

[15] Hermann, L.: Lehrbuch der experimentellen Toxicologie, 1874, Hirschwald, pp, 276, 101.

[16] Eulenberg: Gewerbehygiene, 1876, p. 398.

[17] Luessem, F.: Ztschr. f. klin. Med. **9**: 397, 1885.

[18] In this concentration, one of us (A. B. L.) was on one occasion completely anesthetized in fifteen seconds.

[19] Data unpublished.

[20] Cotton, J. H.: Canadian M. A. J. **7**: 769 (Sept.) 1917.

[21] Stehle and Bourne: J. A. M. A. **79**: 375 (July 29) 1922. See also Dale, Hadfield and King: Lancet, 5192, 1923; also summary of this controversy in J. A. M. A. **81**: 1040, 1923.

[22] Cotton, J. H.: Am. J. Surg. (Anesthesia Supp.) **33**: 34 (April) 1919.

Brown,[23] working on mice, rabbits, cats and dogs, subsequently confirmed these results at a time when Luckhardt and Carter were establishing on themselves and others the anesthetic and analgesic properties of the gas.

April 27, 1923, Luckhardt and Carter[1] reported the first 106 cases in which operations were performed under ethylene gas at the Presbyterian Hospital, Chicago.

FURTHER REPORT ON ETHYLENE AS A GAS ANESTHETIC

We now turn to a short discussion of certain facts not mentioned in our first reports, and to certain observations made since they were published.

1. *Premedication.*—In no instance in this or the previous series of patients was morphin, scopolamin, or any other analgesic or soporific given purposely as an adjuvant for subsequent ethylene anesthesia. In a few instances, morphin had been given prior to operation for control of pain. Our experience, then, with but few exceptions, refers to the action of ethylene as the sole agent responsible for the analgesia and anesthesia. As might be expected, however, morphin is a powerful aid from every point of view, conducing not only to a more perfect relaxation in every case but particularly in the more resistant cases, as well as allowing an appreciable reduction in the concentration of ethylene and an increase in the percentage of oxygen necessary for complete surgical anesthesia.

It is well known that there are numerous reports in the literature on gas-oxygen anesthesia (N_2O-O_2) which in reality ought to be referred to as morphin-nitrous oxid-oxygen-ether anesthesia. The importance of the ether seems to be considered by many entirely negligible, even when one third or more of this powerful anesthetic is given during the greater part of an operation. We take occasion to emphasize the fact that neither morphin, scopolamin nor ether was used with the ethylene. As a result, we are spared the impossible task of evaluating their respective parts in the production of the anesthetic state.

2. *Concentration of Ethylene Used.*—The concentration of ethylene necessary to obtain and maintain the anesthetic state depends, as with other anesthetic agents, on a number of factors, of which the nature of the operation (extremity versus abdominal) and the patient himself (youth, muscular development, excitability of nervous system, alcoholism) are the most important.

In the first clinical report[1] it was stated that the average percentage of ethylene necessary for surgical anesthesia was about 82 per cent. With an increase in the number of abdominal operations, it was found that the percentage of ethylene necessary for a satisfactory surgical anesthesia state lay close to 90 per cent. (87.6 per cent.), at any rate during such parts of the operation as involved the greatest amount of manipulation of the abdominal viscera and parietal peritoneum. If a short time (five minutes or more) is allowed for the thorough saturation of the patient with the anesthetic, operative procedures are possible which could not have been consummated shortly after induction. In fact, after a prolonged period of anesthesia, a deep anesthetic state may be maintained on a much lower percentage (80) of ethylene than is required early after induction.

3. *Postanesthetic Vomiting.*—Patients may vomit following any operative procedure, for a variety of reasons. Afferent impulses, chiefly of a painful sort, may reflexly induce emesis. So may morphin itself given for the control of pain. The anesthetic itself may stimulate the vomiting center by direct central action. Impurities in the anesthetic may be partly or wholly responsible for the vomiting. Any one of these, acting alone or in combination, may lead to nausea or emesis.

It is difficult to state definitely why one patient under ethylene vomits following a relatively simple operation (removal of small adenoma of breast) and another not after laparotomy; or why one patient vomits folowing an appendectomy and the other does not. The administration of morphin given because of postoperative pain seemed to stop the nausea and vomiting in some patients, and certainly induced it in others. As a general rule, any prolonged operation under ethylene, especially if abdominal in nature, is followed by some nausea and retching. Such patients may vomit once or twice within the first three hours; rarely more than three times. From 14 to 16 per cent. vomit once or twice on awakening. Since retching movements may occur during the period of induction, or when the patient is but lightly anesthetized, it would seem to be due to direct stimulation of the vomiting center by the ethylene itself (or impurities in it). At any rate, the vomiting, when it does occur, is never serious or prolonged. In our series, vomiting occurred on awakening or subsequently in 30.2 per cent. of the patients following ethylene and in 76.6 per cent. of the patients following ether anesthesia. Besides the marked difference in the occurrence of vomiting, the postanesthetic vomiting of the etherized patients was more severe and more prolonged.

4. *Gas Pains.*—The low incidence of postoperative gas pains was striking. Gas pains were noted in 4.2 per cent. of 119 cases, whereas 36.6 per cent. of patients operated on under ether anesthesia suffered from this postoperative discomfort.

5. *Safety of Ethylene Anesthesia.*—When ethylene gas is pushed to the limit in dogs, the respiratory center fails first and at a time when the force and frequency of the heart are quite normal. Artificial respiration quickly restores the animal.[24] During a three-hour period of administration to a dog, ethylene was given six times in concentrations necessitating artificial respiration. After we had ceased to administer ethylene, the animal recovered in ten minutes and appeared perfectly normal except for a temporary lack of appetite. In several instances a phenolsulphonephthalein test of kidney function was found to be normal on the day following a three-hour period of anesthesia. The rate of elimination by the kidneys of intravenously injected Ringer's solution remained unchanged. At no time did even a prolonged anesthesia lead to an albuminuria or a glycosuria.

6. *Cases Illustrative of Ethylene Anesthesia.*—In the article dealing with ethylene as a gas anesthetic,[1] we enumerated the various types of operation that had been

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[23] Brown: Canadian M. A. J., March, 1923.

[24] Since ethylene, like morphin, depresses the respiratory center, ethylene should be administered with greater caution to patients who have been premedicated with morphin. On theoretical grounds, we would, therefore, advise particularly strongly against the administration, in a morphinized patient, of the highly concentrated ethylene vapor for purposes of rapid induction. We feel that ethylene-oxygen anesthesia should never be forced. What Gwathmey has said so well concerning nitrous oxid-oxygen anesthesia in this connection (J. A. M. A. 81: 1133 [Sept. 29] 1923) we feel is applicable to ethylene-oxygen and for the same implied reasons. The use of morphin prior to ethylene-oxygen anesthesia will forestall the possible necessity of ever forcing the ethylene-oxygen gas mixture.

performed under ethylene. To append another list of similar nature at this time would, it seems to us, serve no purpose. Suffice it to say that the gas has been used in almost every type of surgical procedure in which a general anesthetic was indicated. We did think, however, that the reader might be interested in the histories of a few cases illustrative of the action of ethylene on patients who were not premedicated.

RESECTIONS OF THE STOMACH

Case 1.—L. G., woman, aged 50, had complained of severe pain in the epigastrium, referred to the back, and diarrhea for some months. These pains were associated with a marked loss in weight. At the time the first examination was made (July 17, 1923), a tumor could be felt in the epigastrium. The pyloric end of the stomach could be palpated easily, as the patient was very thin. The mass palpated suggested somewhat a leather bottle stomach. The roentgen ray revealed a definite filling defect, limited to the pyloric end of the stomach. Films revealed a constant and superior impassable defect involving the end of the antrum up to the pyloric ring, confirming the fluoroscopic findings. Analysis of the stomach contents revealed a total acidity of 55; free hydrochloric acid, 39; combined and other acids, 16.

July 25, a resection of the stomach was performed, preceded by a gastro-enterostomy, the anastomosis being made well to the left. The right half of the stomach was resected. The resection was performed easily under ethylene anesthesia. Occasionally, some movements associated with gulping were noted. Peristaltic waves also were observed at times. These did not interfere with the operation. No difficulty was experienced until closure of the abdomen was attempted. The rectus muscles were at this time very rigid, but they relaxed immediately when more ethylene was given.

The patient recovered consciousness within three minutes after the anesthetic was discontinued. She gulped up some dark stomach contents while on the table. Twenty-four hours later she had hiccough for a short while, and gulped up several times a dark, blood-stained fluid. Nausea was not complained of following the operation. Recovery was good. It was noted during the operation that the skin was dry. There was no evidence of any bronchial irritation.

Case 2.—A. R., a man, aged 50, entered the hospital, Sept. 23, 1923. Since July he had had diarrhea from time to time and noted a rapid loss of weight. He had lost from 30 to 40 pounds (13.5 to 18 kg.), and complained of feeling weak. The physician whom he consulted soon after the beginning of his illness made a roentgen-ray examination of the stomach and found a definite filling defect of the pyloric end. The findings were those of a carcinoma of the pylorus. At no time had there been obstruction or retention.

September 25, one half of the stomach was removed under ethylene, a gastro-enterostomy having first been performed well to the left of the greater curvature. The operation was performed without any difficulty as far as the anesthesia was concerned. The patient took the anesthetic well and without cyanosis. When an attempt was made to close the abdomen, the rectus muscles were very rigid. More ethylene was administered without relaxing the muscles sufficiently. Some ether was then administered. The patient recovered consciousness quickly, very little ether having been given. Following the operation the patient vomited once, 3 ounces of a dark, blood-stained liquid.

Recovery from anesthesia was rapid, no nausea being complained of except that associated with vomiting once of a dark-stained liquid, shortly after the patient was returned to his room. (This case is again referred to under "Failures.")

GASTRO-ENTEROSTOMY; PATIENT HAD PULMONARY TUBERCULOSIS

Case 3.—E. G., a woman, aged 52, had for several years definite evidences of pulmonary tuberculosis. Eighteen months before entering the hospital, May 20, 1920, a gastro-enterostomy had been performed under ether because of a pyloric stenosis following the healing of an ulcer. Ethylene was administered on the present occasion, and a gastro-enterostomy was performed to the left of the one previously made. There was no evidence of any exacerbation of the tuberculous lesions in the lung.

The retention was not relieved by the second gastro-enterostomy, and as there was clinical evidence of a vicious circle, an enterostomy was made under ethylene between the loops of the intestine employed in making the gastro-enterostomy. There were no changes in the pulmonary lesion following these operations. Careful examinations were made to determine whether any extension of the tuberculous process could be detected. The patient recovered rapidly from the effects of the anesthesia. (Stomach retention is still noted. The patient seems to be improving, however, feeding being carried on through a jejunostomy made some six weeks before the entero-enterostomy was performed. The jejunostomy was performed under local anesthesia.)

AMPUTATIONS OF THE BREAST

Case 4.—Mrs. A. O., aged 74, had noticed for over two years some tenderness in the left breast and some induration. Recently this induration had become more marked. The mass had all the clinical characteristics of a carcinoma. On entering the hospital, the patient had a systolic pressure of 260 and a diastolic pressure of 160.

Oct. 1, 1923, a radical removal of the breast was performed under ethylene. The anesthesia was very good. No cyanosis was noted. The respirations were even and relatively shallow. The patient was conscious on return from operating room. During the six hours immediately following the operation, the patient vomited small amounts three times. Vomiting then ceased. She remarked about the pleasant anesthesia, experiencing no discomforts during induction and waking up without realizing that an operation had been performed. No effect on the blood pressure was noted.

Case 5.—A. O., a woman, aged 33, entered the hospital, June 6, 1923. During the preceding December, she had noted a nodule in the left axilla and experienced a heavy, tense feeling in the left breast. The mass in the breast presented all the clinical signs associated with a carcinoma.

Radical removal of the breast was performed, May 7, under ethylene. The anesthesia was good. The patient regained consciousness on the operating table. She complained, on the return of consciousness, of severe pain in the incision. Morphin was administered to the patient in the operating room. Nausea was not noted following operation. Recovery was rapid.

SUTURE OF THE ULNAR NERVE

Case 6.—L. F., a man, aged 28, was riding in a mail truck which struck a trolley pole, Sept. 1, 1922. He was thrown through the wind shield and sustained two cuts on the inner side of the arm just below the elbow. He experienced considerable pain, which soon subsided, after which changes associated with an injury of the ulnar nerve were noted.

Aug. 8, 1923, under ethylene anesthesia, the ulnar nerve was exposed just below the internal epicondyle. The nerve was found to be almost entirely divided. A neuroma had developed.

Anesthesia was satisfactory, although at one time vomiting occurred and the arm which had been flexed across the patient's chest for the operation was moved by the motions associated with vomiting. A relatively large amount of light yellowish fluid was thrown up at this time. The vomiting was easily controlled.

The patient was conscious when returned from the operating room. No nausea or vomiting was noted after return to the ward.

RESECTION OF LOWER END OF RIGHT RADIUS AND BONE TRANSPLANTATION

Case 7.—L. Y., a man, aged 34, had complained of pain in the region of the right wrist-joint for two months. Two weeks before entering the hospital he fell on the outstretched hand and injured the lower end of the radius, the pain becoming much more marked. A roentgenogram taken shortly after the accident revealed a shadow, an asymmetric expansion of the bone and a fracture. The fracture was pathologic, having occurred through a central giant cell sarcoma.

April 30, 1923, the lower end of the radius was resected, under ethylene, and a bone transplant taken from the anteromedial surface of the tibia was inserted. Anesthesia was very satisfactory. Considerable oozing was noted; no more than is encountered frequently in the soft tissues adjacent to malignant growths of bone. The patient vomited small amounts three times during seven hours following the operation. Consciousness was recovered quickly, and morphin was administered in the operating room because of pain.

PLATING OF FRACTURED FEMUR

CASE 8.—K. P., a woman, aged 40, admitted to the hospital, Aug. 10, 1923, seven days before had been struck by an automobile and sustained a fracture through the lower third of the left thigh. The fracture was transverse. The fragments were not in line and, because of the difficulty in maintaining reduction, an open operation was performed.

Operation was performed, August 10. Anesthesia was excellent. Difficulty was experienced in fixing the plate because of the disproportion in size between the drill points and the screws. The operation was unduly prolonged. Anesthesia was exceptionally good and smooth. It lasted one hour and a half. Recovery of consciousness occurred within three minutes. There was no nausea or vomiting following the operation.

REFRACTURE OF TIBIA AND FIBULA, WITH ATTEMPTED REDUCTION OF POSTERIOR DISLOCATION OF FOOT IN OLD POTT'S FRACTURE

CASE 9.—G. D., a man, aged 47, admitted to the hospital, April 9, 1923, during the preceding October had sustained a Pott's fracture (right side). A posterior dislocation of the foot had occurred with this. The dislocation had not been reduced, and as a result a very marked deformity had resulted. April 21, the original fracture through the fibula and tibia was reproduced under ethylene anesthesia, the ankle joint opened and an attempt made to reduce this dislocation. This was not entirely successful. The marked deformity was, however, corrected by inverting the foot to a marked degree.

The anesthesia was exceptionally satisfactory. It was continued for fifty-five minutes. The patient recovered within three minutes after the anesthesia was discontinued. He vomited a small amount once immediately after return to the ward.

7. *Failures.*—We have a record of seven more or less complete failures in a series of more than 700 operations, or about 1 per cent. of the cases. In order that the reader may better understand the nature and extent of the failures, the histories are briefly summarized. Before doing so we emphasize the fact, mentioned earlier in this paper, that none of the patients had been premedicated except one middle-aged man, who had received a small quantity of morphin from twenty to thirty minutes prior to the attempted anesthesia. Since he represents an individual who was unusually refractory to all anesthetic agents, including ether, we mention his history first and will then briefly refer to others.

CASE 10.—In a middle aged man, at two previous attempts at cystoscopic examination for suspected tuberculous ulceration of the bladder, nitrous oxid-oxygen anesthesia was attempted but was entirely ineffective and ether was given. On this occasion ⅛ grain of morphin sulphate was given from twenty to thirty minutes prior to a 90 to 95 per cent. ethylene-oxygen anesthesia. The patient apparently relaxed one moment and then began mumbling in drunken fashion and began to writhe and struggle. After the patient had been saturated for from eight to ten minutes with ethylene-oxygen, he became quiet. The cystoscope was passed without further movements. When, however, the cystoscope was drawn toward the [illegible] for its examination, the mumbling, writhing and struggling were resumed. Further attempts at saturation with ethylene-oxygen failed to induce the desired relaxation. Ether, therefore, was given by the drop method. During the administration of the first half pound of ether the patient continued to struggle, mumble, and adduct the lower extremities. Following the administration of the next quarter pound of ether the respiration became quite slow and regular (full morphin effect?) and the anesthesia was complete and very satisfactory. (Published with permission of Dr. Herbst.)

CASE 2.—A. R., a middle-aged man, who had received no premedication, was anesthetized with ethylene-oxygen. Anesthesia was satisfactory during resection of the pyloric end of the stomach and a posterior gastro-enterostomy. Proper surgical closure of the abdominal incision without a little ether was impossible because of the extreme rigidity of the abdominal musculature.

CASES 11 and 12.—Two middle-aged men were operated on for inguinal hernia. No premedication was given. Relaxation of the abdominal musculature was so unsatisfactory that the patients were etherized.

CASES 13 and 14.—Two young men, who had been given no premedication, had poor relaxation, so that cholecystectomy was impossible. In one of the cases subsequent etherization did not increase the relaxation in any striking manner.

CASE 15.—In a case of appendical abscess, the omentum had surrounded the perforated appendix, which was directed forward and medially. In an attempt to deliver the abscess, some difficulty was encountered. The muscle-splitting incision had been used, and was enlarged by being extended downward along the outer side of the rectus muscle. The mass of inflamed omentum was lying rather low. There was some rigidity of the abdominal muscles, which was not extreme. In order to secure more complete relaxation to permit of delivery of this mass without rupture of the abscess contained within the folds of the omentum, ether was administered.

ADVANTAGES OF ETHYLENE AS A GENERAL ANESTHETIC

A new anesthetic, to be deserving of a thorough trial, must have definite advantages over those already in general use. While the number of cases in which ethylene has been administered is small, a sufficient number have been observed to permit of a judgment of its advantages, which are very definite. These will be discussed under the heads: (1) ease of induction and rapidity of recovery; (2) relaxation without cyanosis; (3) absence of sweating; (4) absence of respiratory irritation, and (5) narrow anesthetic margin.

1. *Ease of Induction and Rapidity of Recovery.*—Patients can be anesthetized rapidly with ethylene without struggling and without any sensation of suffocation. Absence of struggling or excitement is in the majority of cases very striking. The patients become anesthetized without any movement of the body, hands or feet. In some instances, when an operation was to be performed on the hands, the fingers have been rapidly flexed and extended a few times. When questioned, the patients state that they experienced no distressing or unpleasant sensations during induction of the anesthesia. In some abdominal operations it has been found best to induce anesthesia slowly and to secure complete relaxation before making an incision. In some of these cases, eight minutes has been consumed in inducing anesthesia. Since marked analgesia accompanies early complete anesthesia, operations in which relaxation is not desired may be begun after a few inhalations of the ethylene.

When anesthesia has been induced, respiration becomes regular and somewhat shallow. [illegible]

The ease of induction [illegible]

The patient rapidly recovers from the anesthesia. Usually within two minutes after the anesthetic is stopped, the patient is awake and mentally clear. Return of consciousness occurs so quickly and the mind is so clear that patients frequently complain of pain in the incision, and morphin is frequently administered before the anesthetic is stopped, to prevent pain.

The figures that have been given indicate the frequency with which nausea and vomiting have been observed. The nausea seems to vary somewhat with the different tanks of ethylene that have been employed. Nausea, when present, usually occurs when the patient passes from the anesthetic to the waking stage. Frequently some gastric secretion lightly stained with bile is gulped up, no severe retching occurring. The vomiting ceases after this material is ejected, and nausea is no longer complained of. Hunger may be present within two hours after administration of the anesthetic.

In three cases, nausea not accompanied by much vomiting has persisted from eighteen to twenty-four hours. In one instance, tissue was removed from the breast and a frozen section made. The tissue removed proved to be malignant. A request to complete the operation if the tissue proved to be malignant was not granted. Later permission was obtained to do a radical operation, which was performed the next day. No nausea followed the second administration of ethylene. In another case, in which a rather large cyst was removed from the breast, nausea persisted for twenty-four hours, unaccompanied by much vomiting. In still another case, the appendix being removed, nausea accompanied by hyperchlorhydria persisted the greater part of twenty-four hours. These three cases are the exceptions to rapid recovery without nausea. As previously stated, the amount of nausea has seemed to vary with the different tanks of ethylene that have been employed. It has been thought that this nausea might be eliminated when a closer study of ethylene was made. It is quite probable that nausea can never be completely eliminated when a patient passes rapidly from the anesthetic to the waking stage.

There has been a striking absence of headache or postanesthetic distress. When leaving the table, patients converse intelligently; the mind is clear and remains so.

2. *Relaxation Without Cyanosis.*—Relaxation can be secured much better with ethylene than with nitrous oxid. Time should be taken in the induction to secure complete anesthesia. Relaxation is so complete that pelvic work can be performed easily. Gastro-enterostomies and stomach resections can be performed without difficulty.

Ethylene anesthesia is especially satisfactory in operations on the extremities. Complete relaxation is secured so that fragments of fractures may be easily brought into line and fixed. In one case mentioned above (an old Pott's fracture with a bad deformity and an unreduced posterior dislocation of the foot), both the tibia and the fibula had to be refractured, and it was necessary to resort to considerable force in attempting to replace the astragalus. During this operation, lasting fifty-five minutes, relaxation was complete. The anesthesia was very satisfactory.

Relaxation is secured without cyanosis. The color of the patient is more nearly nomal than with any other general anesthetic now employed. In some instances in which the anesthesia has been administered over a long period, the skin and mucous membranes may appear to be abnormally pink, a condition noted by Nunneley[13] and Luessem,[17] and attributed by the latter to vasodilatation. Because of this striking appearance, we intend to reinvestigate, in spite of our previous negative results, the possible chemical union of ethylene with the hemoglobin. If such a chemical union takes place under all or certain conditions, the chemical combination of ethylene with the hemoglobin is certainly very unstable; for within fifteen minutes or less patients regain their normal color.

Frequently during operations on the gastro-intestinal tract, strong peristaltic waves have been noted. These do not interfere with the surgical work, although in some cases the peristaltic waves are very marked, the bowel becoming rigid and hard. This is not so frequently encountered during ether anesthesia. After questioning patients on whom abdominal operations have been performed, we are quite convinced that they complain less of gas pains after ethylene than after nitrous oxid anesthesia. Peristalsis is apparently little influenced by ethylene. Absence of interference with peristalsis is a distinct advantage, as regards both gas pains and postoperative ileus. A depressed peristalsis becoming active again may account for the gas pains complained of by some patients when an anesthetic has been employed for operations not involving the abdomen.

The persistence of normal or even exaggerated peristaltic waves during ethylene anesthesia can be accounted for by the removal of the inhibitory control exercised normally by the higher centers through their extrinsic nerves. The persistence of strong peristaltic waves indicates, furthermore, that ethylene does not paralyze or seriously depress the normal neuromuscular apparatus of the bowel responsible for the regular and coordinated propagation of the peristaltic waves. During and after profound or prolonged ether anesthesia, paralysis of the neuromuscular apparatus of the bowel is complete. When the bowel begins to recover, the activity is not coordinated. As a result of this incoordinated activity, local and stationary constrictions of the bowel incarcerate gas; and, by putting the latter under great tension, occasion gas pains. Direct manipulation of stomach and trauma to the intestines will aid in wrecking the normal mechanisms. The effect of stimulating afferent nerves in the abdominal cavity or elsewhere (painful stimuli) leads reflexly to inhibition of gastro-intestinal movements. If morphin is given (for control of pain), another factor is introduced which augments the paresis of the bowel previously brought on by the toxic action of the ether, local injury, or reflex inhibition due to stimulation of sensory nerves.

Ethylene is less toxic in its action on nervous tissue. It is, furthermore, more rapidly eliminated. This accounts for the absence of gas pains except in those few cases in which morphin was given in rather large doses after operation for the control of pain.

3. *Absence of Sweating.*—Absence of sweating is a striking characteristic of ethylene anesthesia. After an anesthesia lasting from forty-five minutes to an hour, the skin is dry. The garments are usually so dry that it is not necessary to change them. This condition of the skin has not been observed with other general anesthetics. No drugs have been given before ethylene is administered, morphin and atropin being dispensed with. The absence of loss of body fluids is a distinct advantage. The dry skin prevents chilling, and should be an important factor in preventing postoperative lung complications.

4. *Absence of Respiratory Irritation.*—In none of the cases which we have observed has there been an increase of saliva or mucus. The mucous membrane of the respiratory tract has not been irritated, and there has been no excessive secretion of mucus. In one case, in which two operations were performed on a patient with pulmonary tuberculosis, there has been no evidence of any extension of the process or irritation of the bronchial mucous membranes. The absence of respiratory secretion and of sweating are distinct advantages which ethylene has over any other general anesthetic agent now employed.

5. *Narrow Anesthetic Margin.*—Patients pass rapidly from the anesthetic to the waking stage; the margin of anesthesia is narrow. This will probably be considered a disadvantage from the point of view of the anesthetist and surgeon, but we think it is a distinct advantage from the point of view of the patient. The narrow anesthetic margin is probably most often noted in abdominal operations. The patient, apparently in deep anesthesia, may gulp suddenly or make some spasmodic movements of the abdominal muscles. The patient can be rendered deeply anesthetic very easily. As experience is gained in the administration of ethylene, a smoother anesthesia will be given. The periods in which patients partially come out from a deep anesthesia are becoming less and less frequent, as experience in administering ethylene is being acquired.

THE DISADVANTAGES OF ETHYLENE

1. *Odor.*—Ethylene gas has not a particularly pleasing odor. A few find it offensive. Others deny any objectionable smell. As with taste, one can say, "De odoribus non est disputandum." Many describe the odor as being similar to "molasses," "sorghum" or "phosphorus matches." It is an exceptional patient who complains about it. After four or five deep inhalations of an 80 per cent. mixture, the odor is no longer noticed, probably because of a depression of the peripheral sense organ or of the olfactory center itself. The odor is certainly no worse than the odor of ether and, unlike ether, this gas is entirely devoid of irritating properties. Many patients on recovering from the anesthesia, state that the gas has no odor. When we first employed ethylene in the operating room, the odor was quite noticeable, but became less and less so until at present it is not noted any more than that of ether. If disagreeable, it could be easily disguised.

2. *Oozing.*—The oozing from the wound is *perhaps* more marked than with other anesthetics. This oozing does not last after the anesthetic has been stopped. There have been no postoperative hematomas. The oozing, while greater, perhaps, is not excessive.

3. *Explosibility.*—As noted in a previous communication, ethylene gas is inflammable. In fact, with certain mixtures with air or oxygen, it is highly explosive. *Frankly, this is its weak point and one which should not be dealt with lightly.* At that, it is not quite so explosive as ether vapor. Since ether volatilizes from the mask and its volatilization is greatly increased by the patient during expiration and is heavier than ethylene, it would appear that a poorly ventilated room might be charged sooner with an explosive ether-oxygen mixture than with an ethylene-oxygen mixture when only such ethylene escapes into the room as the patient has inhaled. Only careful analysis of the atmosphere in the operating room will reveal whether ethylene or ether is the more dangerous. We certainly advise against the use of the cautery or free flame in the operating room, or any source of electrical discharges. Some preliminary tests have failed to reveal by our method detectable amounts of ethylene in the operating room after one and one-half hours of continuous administration. These tests were made under most favorable circumstances, and will be repeated at an early date, using better methods and analyzing the air in the operating room under more adverse conditions. We write not to alarm but simply to caution those who otherwise might be careless in its use. Knowing that, like illuminating gas and ether vapor, it forms with air and oxygen highly explosive mixtures, it behooves all in the interest of all and everything to be extremely cautious in its administration. On the other hand, we add that ethylene in more or less pure form is used now and has been used for some time for purposes of heating, lighting and welding.

CONCLUSION

In view of our experience, we feel that ethylene-oxygen has a very definite place as a general anesthetic agent, and is deserving of serious consideration and thorough trial.

THE RECORDING OF SCHOOLROOM DATA ON COMMUNICABLE DISEASES

A SIMPLE, GRAPHIC METHOD THAT ADMITS OF A CLOSE EPIDEMIOLOGIC STUDY OF ACTUAL CONDITIONS

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In an effort to study the elusive problem of the spread of communicable diseases in schoolrooms, a plan was devised whereby known cases and known exposures and also cases occurring among exposures after exclusion were noted on a plat representing the seating of a schoolroom. The scope of study included 247 rooms in eighteen, or approximately one fifth of the grade schools. The schools selected represented each geographic subdivision of the Minneapolis school system and an enrolment of nearly 10,000 children. The period of the year chosen for the study was the midwinter semester beginning Jan. 2 and ending March 16, 1923. As the greatest incidence of communicable diseases occurs in age groups under 10 years, the development of a modified plan applicable to interdepartmental work was not attempted.

The school nurse in each of the schools studied was furnished with a plat for each room of that school, together with instructions (reproduced at the end of this article) for its use. The routine procedure of the division of public health of daily notification to the schools of the report or discovery of cases of communicable diseases was used. On the receipt of this notice in a school included in the study, the nurse made a visit to the room which a child named in the notice was attending, and an inquiry was made of the teacher as to the exact seat occupied by this child. The abbreviation of the name of the disease [illegible] the date of onset were then inserted [illegible] the plate representing that seat in [illegible]

A similar procedure was followed in the case of children excluded as contacts, and the fact of case or contact was differentiated by a symbol. Should the name of a pupil previously excluded as a contact be reported as a case, the fact was noted by symbol together with the date of onset of the contact case. Cases such as pediculosis, which are ordinarily discovered by the nurse, were noted on the plat at the time of discovery and exclusion from school. The date of return to school was also noted on the plat. The routine practice of school nurses to attempt to discover the source of infection, and the lines of transmission of communicable diseases in the schools, were also used in this study. Such information as was obtainable was noted on the plat by connecting with a straight line those cases in which the pupils had a definite school association, such as contiguity of seating during class hours, or friendships involving close association during recess periods. Cases in which the pupils were known to have an association by reason of residence, neighborhood or otherwise, not definitely connected with the school, were shown by a waved, connecting line between the squares representing seats on the plat.

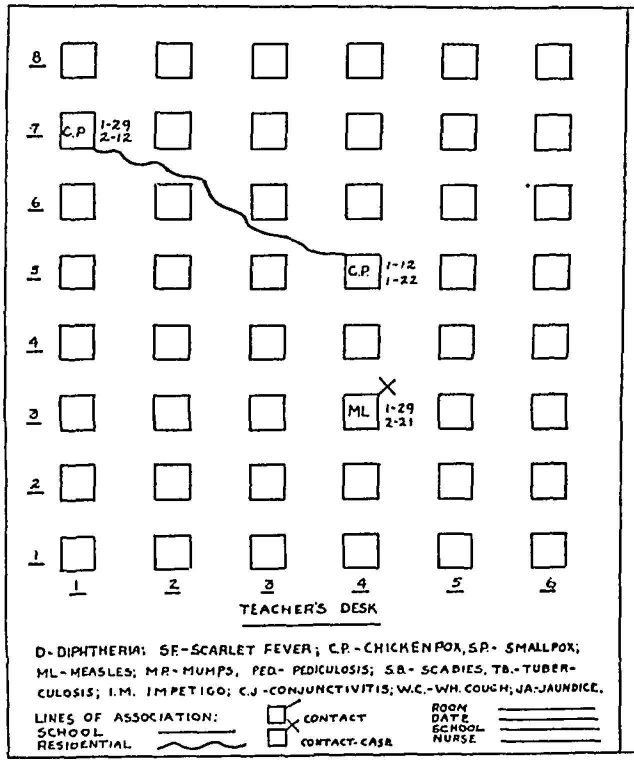
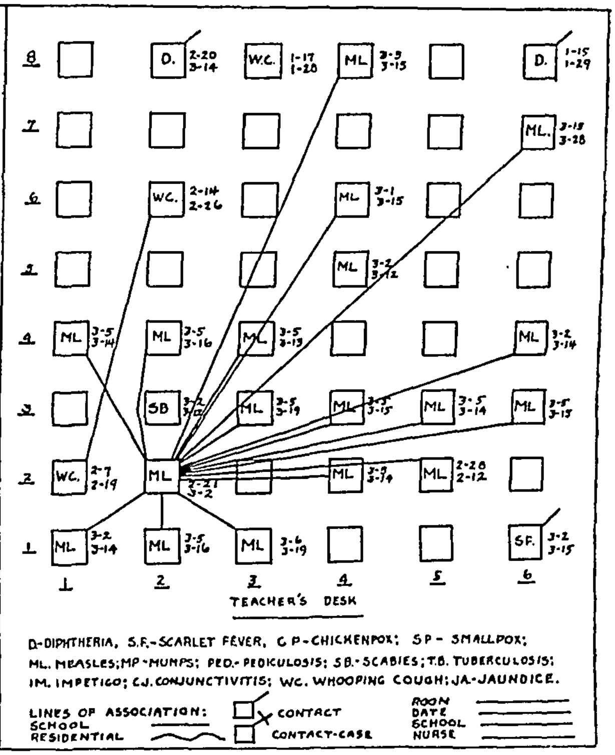

8
7
6
5
4
3
2
1
C.P 1-29 2-12
C.P 1-12 1-22
ML 1-29 2-21
1 2 3 4 5 6
TEACHER'S DESK
D-DIPHTHERIA; SF.-SCARLET FEVER; C.P.-CHICKENPOX, S.P.- SMALLPOX; ML-MEASLES; MP.-MUMPS, PED- PEDICULOSIS; S.B.- SCABIES, TB.-TUBERCULOSIS; I.M. IMPETIGO; C.J-CONJUNCTIVITIS; W.C.-WH. COUGH; JA.-JAUNDICE.
LINES OF ASSOCIATION:
SCHOOL
RESIDENTIAL
CONTACT
CONTACT-CASE
ROOM
DATE
SCHOOL
NURSE

Fig. 1.—A controlled case of measles; also two chickenpox cases with residential association.


8
7
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ML.
WC.
SB
SF.
1 2 3 4 5 6
TEACHER'S DESK
D-DIPHTHERIA, S.F.-SCARLET FEVER, C P-CHICKENPOX; SP - SMALLPOX; ML. MEASLES; MP-MUMPS; PED.-PEDICULOSIS; SB.-SCABIES; T.B. TUBERCULOSIS; IM. IMPETIGO; CJ. CONJUNCTIVITIS; WC. WHOOPING COUGH; JA-JAUNDICE.
LINES OF ASSOCIATION:
SCHOOL
RESIDENTIAL
CONTACT
CONTACT-CASE
ROOM
DATE
SCHOOL
NURSE

Fig. 2.—A missed case of measles, together with other schoolroom findings.

At the end of the semester, the plats from the schools studied were collected and tabulations made, of which Table 1 is representative. It will be noted on examination of this table that 833 children were excluded for all causes; 675 were known cases and 158 were excluded as contacts. Of these contacts, forty-nine developed the disease concerned in their exclusion. They are classed as contact-cases in this study. Had these forty-nine children excluded as contacts who developed cases been permitted to remain in school, the plats of forty-nine rooms would have most likely corresponded to the plat of the room shown of a "missed" case (Fig. 2), rather than the comparative plate shown in which a contact was excluded who developed a case outside the schoolroom (Fig. 1). The incidence of pediculosis and scabies is accounted for by reason of the fact that the schools selected for study were located in neighborhoods having the least social advantages and the greatest amount of congestion in the school buildings.

Table 2 shows the total number of cases and deaths in the city of the four diseases most prevalent during the period of the study. These totals are divided to show percentages of cases and deaths occurring among children in the preschool age; those of over school; those of school age but not attending; those attending private schools, and those attending public schools (Table 2 and Fig. 3).

The foregoing is an attempt to show how a study was made, and the prevalence of certain diseases in the city as the reason why it was undertaken. It is now appropriate to attempt to show any values that may have been derived from these studies.

1. It will be noted that the figures on diphtheria, the knowledge of which affords greater opportunity for preventive work, show a decided contrast to the figures on scarlet fever and chickenpox. These figures also show the imperative need of diphtheria toxin-antitoxin for children in preschool ages. The number of smallpox cases occurring among school children in Minneapolis is still high, though reduced 50 per cent. by a voluntary vaccination campaign conducted during the last three years. In this connection it may be permissible to state that vaccination cannot legally be made a prerequisite to school attendance in Minnesota.

2. The use of a seating plat shows graphically the value of exclusion of cases, contacts and exposures.

3. The seating plat can be used to show data concerning immunization or protection of pupils against communicable disease and facilitate the use of a plan of surrounding unprotected pupils with protected pupils during the prevalence of certain diseases. Those

immunized against diphtheria or smallpox or recovered from measles could be seated nearest to nonimmunes, thus separating the nonimmunes during the hours of school session.

4. The use of a seating plat permits much closer epidemiologic study on means of transmission of diseases in school, and encourages nurses and teachers to give special thought to the possibilities of communicable disease control, as they see children during recreation periods.

5. There is a check on the efficiency of communicable disease regulations, particularly in those cases which are returned as recovered or noninfectious.

6. The responsibility may be fixed for violation of school health rules in case of an epidemic.

7. It affords a graphic means of demonstrating to parents that their children are not being exposed to preventable danger from communicable diseases in school.

8. The tabulation of data gathered on schoolroom plats permits a careful study of communicable disease incidence in schools; a study of the comparative incidence of communicable diseases in schoolrooms of public and private institutions; a comparative study of school incidence as against the total incidence of certain diseases in the city, and the prevalence of certain diseases in certain schools.

9. The record showing residential or schoolroom association as a factor in the transmission of communicable diseases can be kept current during a semester and filed for permanent reference after the semester closes. Cases in this study on which no accurate information could be obtained were shown on the plats without a line of association. If the practice of searching for the course of transmission comes into general use, the accuracy of information obtained is increased, and fewer cases remain on which information is not obtainable.

10. The preliminary work done on this study during a prevalence of diphtheria in October indicated that a theory of "over-the-shoulder" infection from a pupil sitting behind another pupil would be substantiated in those diseases due to direct contact with sprayed nose and throat secretions during coughing, sneezing, singing, speaking or whispering. While the study of the midwinter semester failed to substantiate this theory, it is believed that future studies made during a greater prevalence of certain diseases will establish this means of transmission as a factor worthy of consideration.

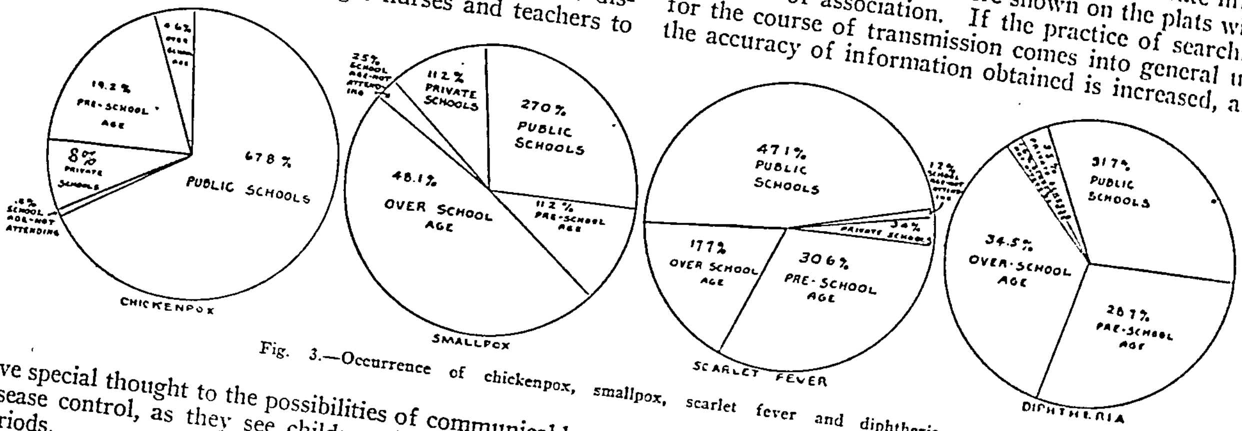

Fig. 3.—Occurrence of chickenpox, smallpox, scarlet fever and diphtheria.

TABLE 1.—*Contagious Diseases in Eighteen Minneapolis Public Schools, from Jan. 2 to March 16, 1923*

School	Diphtheria			Scarlet Fever			Chickenpox			Smallpox			Measles			Mumps			Pediculosis			Scabies			Tuberculosis			Impetigo			Conjunctivitis			Whooping Cough			Ringworm			Jaundice			Totals		
	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case
1.....	1	4	0	1	0	[illegible]	11	[illegible]	4	[illegible]	[illegible]	0	0	0	0	0	0	0	30	0	0	1	0	0	0	0	0	2	0	0	4	0	0	1	0	0	0	0	0	0	0	0	33	[illegible]	4
2.....	1	0	0	1	0	[illegible]	13	3	4	[illegible]	0	0	0	5	0	0	0	0	17	0	0	0	0	0	0	0	0	2	0	0	11	0	0	4	0	0	0	0	0	0	0	0	22	8	4
3.....	1	0	1	1	1	[illegible]	2	0	[illegible]	[illegible]	0	0	1	0	0	0	1	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	13	4	1
4.....	4	0	0	0	0	[illegible]	1	0	[illegible]	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	17	0	0
5.....	0	0	0	2	0	[illegible]	4	6	1	[illegible]	0	0	15	0	0	[illegible]	0	0	2	0	0	2	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	40	6	1
6.....	4	4	0	1	0	[illegible]	2	1	[illegible]	[illegible]	0	0	0	0	0	[illegible]	0	0	13	0	6	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	8	0
7.....	1	0	0	1	1	[illegible]	11	1	[illegible]	[illegible]	0	0	[illegible]	0	0	[illegible]	[illegible]	0	55	6	0	2	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	11	7
8.....	0	0	0	2	1	[illegible]	5	2	[illegible]	[illegible]	0	0	[illegible]	0	0	[illegible]	[illegible]	0	35	0	0	1	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	115	[illegible]	1
9.....	2	1	0	10	2	[illegible]	2	0	[illegible]	[illegible]	0	0	19	1	0	[illegible]	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	6	2
10.....	0	0	0	3	3	[illegible]	5	1	[illegible]	[illegible]	0	0	0	0	1	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4	2
11.....	0	0	0	0	2	[illegible]	0	0	[illegible]	[illegible]	0	0	0	0	0	[illegible]	[illegible]	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2	4
12.....	3	3	0	1	1	[illegible]	0	2	[illegible]	[illegible]	0	0	0	0	0	[illegible]	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	15	0
13.....	0	0	0	2	2	[illegible]	19	1	[illegible]	[illegible]	0	0	0	0	0	[illegible]	[illegible]	0	18	0	11	0	0	0	0	0	[illegible]	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0	15	2	1
14.....	0	0	0	0	0	[illegible]	5	0	[illegible]	[illegible]	0	0	0	0	0	[illegible]	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0
15.....	0	1	0	0	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	[illegible]	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2	0
16.....	0	0	0	0	1	[illegible]	6	[illegible]	[illegible]	[illegible]	0	0	0	0	[illegible]	[illegible]	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0	25	2	1
17.....	0	0	0	2	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0	13	0	[illegible]
18.....	0	2	1	0	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	0	[illegible]	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0	[illegible]	[illegible]	[illegible]
Totals	17	15	2	27	22	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

INSTRUCTIONS TO NURSES

Jan. 2, 192

Since the advent of medical inspection in schools, m effort has been applied to the problem of controlling c municable diseases among school children. It has b agreed among health officers that a properly inspected scho room is the safest place for a child during the outbreak an epidemic. It is now proposed to prove this fact a as to study the epidemiologic factors of [illegible] among school children, and also with a to determine the spread of infection within the schoolroom, school building and in residential association out of school.

The attached chart represents the seating facilities of a schoolroom. The rows are numbered from left to right and the seats are numbered from the front to the rear of each row. It is expected that the nurse will take the report of communicable diseases which is sent to each school daily and locate the seat used by the pupil who is ill or excluded as a contact. Having learned which seat was used by the pupil in question, the exact corresponding square on the chart is used to insert the abreviation of the disease, and the date of onset, or last attendance is inserted in the space to the right of the square.

In order to be of the greatest value, a chart should cover a full semester. Entries should therefore be made in ink, and sufficient care used to avoid errors which would deface the chart. Should the same pupil be "out" on more than one occasion during a semester, an additional square may be placed above the one used on the first occasion. Thus, a pediculosis patient may have smallpox and require a second entry. Contact cases should be indicated by adding a flagellum to the square. Should the one excluded as a contact be reported later as a case, the flagellum should be crossed, and the last date entered below the first date. Care must be used not to connect flagella. [The symbols are given in Figures 1 and 2.]

TABLE 2.—*Distribution of Cases and Deaths from Certain Diseases in Minneapolis During the Period from Jan. 2 to March 16, 1923*

		Preschool Age	Over School Age	Of School Age, Not Attending	Private Schools	Public Schools
DIPHTHERIA						
Total cases...	258	28.7%	34.5%	1.6%	3.5%	31.7%
Total deaths.	18	50.0%	11.2%	5.5%	5.5%	27.8%
6.9% of diphtheria cases resulted in death.						
SCARLET FEVER						
Total cases...	467	30.6%	17.7%	1.2%	3.4%	47.1%
Total deaths.	7	57.1%	42.9%			
1.5% of scarlet fever cases resulted in death.						
CHICKENPOX						
Total cases...	870	19.2%	4.6%	0.4%	8.0%	67.8%
No deaths from chickenpox.						
SMALLPOX						
Total cases...	108	11.2%	48.1%	2.5%	11.2%	27.0%
No deaths from smallpox.						

By lines of association, it is meant that in the cases of pupils out of school for the same disease who were using seats not abutting on each other and who are close companions about the school building, a straight line showing direct exposure in this manner should be used to connect the squares representing their seats in the schoolroom.

By residential association is meant out of school contact between pupils out of school for the same disease who are occupying different apartments of the same building, next door neighbors, neighborhood playmates, etc. This situation should be indicated by a waved line connecting the squares which represent their seats in the schoolroom.

Aldehyd Content of "Moonshine" Liquor.—The chemists of the Internal Revenue Laboratory who have made thousands of analyses of aged in the wood whiskies prior to prohibition now note that samples which come into the laboratory in connection with raids on "moonshine" sugar, grain or fruit distilleries usually show a high content of acetaldehyd. The "ranker" the liquor, the higher the aldehyd content. The reason is, of course, apparent. The impossibility of fermentation control by the moonshiner results in a considerable oxidation of the ethyl alcohol into acetaldehyd and even acetic acid. The simple pot still and the eagerness for more profits in not discarding heads and tails did the rest, and the liquor presented to the trustful purchaser had everything that is needed to deliver a complete knockout.—J. M. Doran and G. F. Beyer: *Am. J. Pub. Health* **13**:831 (Oct.) 1923.

COMPRESSION FRACTURE OF THE SPINE DEVELOPING DELAYED SYMPTOMS

(POST-TRAUMATIC SPONDYLITIS, OR KÜMMELL'S DISEASE)*

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Post-traumatic spondylitis, or Kümmell's disease, developing as a result of compression fractures of the spine, particularly when seen in young children, is of great importance and rarely encountered.

That Kümmell's[1] disease as described in 1895 is now regarded as a distinct clinical entity is firmly established by most authorities who have written on this type of bone affection, and to Kümmell we are indebted for the first clinical and pathologic report, in which he describes six cases coming under his personal observation.

Post-traumatic spinal deformities developing after from two to six months, or even several years following the original injury, have been too frequently overlooked, or have had the vague and simple caption of back strains, arthritis, contusions, sprains, curvature of the spine or localized neuroses applied to them.

It is to emphasize the great importance of a thorough clinical observation in these cases of vertebral injury without cord lesions, together with a complete neurologic and roentgenographic examination that I am prompted to record a typical case of post-traumatic spondylitis, which has recently come under my care.

The essential predisposing cause is traumatism, whether the trauma to the spine is direct or indirect. In many instances the local tenderness or sensitiveness or pain over the injured portion of the vertebra is frequently very mild and may or may not disappear in a few days. Kümmell states that three distinct stages can be recognized in these cases: (1) the stage of initial injury to the spinal column, attended with a varying degree of surgical shock; (2) the stage of "relative well-being," in which the patient is able to attend to his duties and carry on his occupation, and (3) the development of the third stage, in which, after several weeks, months or even two or three years have elapsed, an angular kyphose appears, and with it the resumption of pain, both local over the spine, or radiating down the extremities, or of a neuralgic character, which frequently is very severe and requires for a time complete rest in the recumbent position.

As Kümmell's disease is essentially not fatal, the pathologic reports and the description of the gross and microscopic findings recorded in the literature in these cases are very meager.

Ludloff, at the Dresden Orthopedic Congress held in May, 1920, demonstrated a specimen of the lumbar spine obtained post mortem. Following traumatism in which no compression fracture was demonstrated, there was found at necropsy distinct contusion and rupture of the blood vessels of the lumbar segments; and, as a result of this nutritional impairment, necrosis involving the spongiotrabeculae of the affected segments was shown which resulted in a compression of the anterior portion of the lumbar bodies and the formation of an angular kyphosis.

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* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Kümmell: Deutsch. med. Wchnschr., 1895, No. 2, p. 180.

It is important to remember that compression fractures of the vertebra, irrespective of the location of the fractured segment, occur in many instances without cord lesions, and that because paralysis does not exist, we should not disregard the possibility of a spinal fracture. The frequency of spinal fracture in the different areas of the column is best shown diagrammatically (Fig. 1). It must also be borne in mind that, in these cases of traumatic spondylitis, a compression fracture does not always exist, and that, as pointed out by Kümmell, the original traumatism to the spine resulting in a contusion of the spongiosa of the bodies of the vertebrae is sufficient to produce atrophy of the bony framework resulting in a slow and gradual compression of the segments involved.

Roentgenographic examination should invariably be made in every case of spinal injury, and an anteroposterior as well as a lateral view is essential. However, as pointed out by several contributors to the subject of post-traumatic spondylitis, the early roentgenograms may not show any demonstrable lesion, whereas after months or even several years, the collapse of the vertebral bodies and the compression of the intervertebral disks is clearly seen by the roentgenogram as the case advances. Mauclaire and Burnier,[2] emphasizing the relative frequency of delayed traumatic vertebral deformities, state that "even in comparatively slight injuries of the vertebral column they should be interpreted and treated as spinal fractures in all doubtful cases."

The differential diagnosis from tuberculous caries (Pott's disease), neuroses, contusions, ankylosing spondylitis, back sprain, and the not infrequent hysterical spinal manifestations or so-called railway spine, demand most careful and thorough consideration, both from a clinical and a roentgenographic standpoint. The prognosis is, as a rule, favorable, provided early treatment is instituted; and, although the deformity when once established cannot be reduced, nevertheless the increase in the size of the kyphos can be controlled by the wearing of a suitable immobilizing apparatus or snug fitting plaster-of-Paris jacket, and ankylosis either fibrous or bony may be obtained which will give functionally an excellent result. In the more severe types of the disease, particularly in the neglected cases, a radical ankylosing operation, such as described by Hibbs or Albee in the treatment of spinal tuberculous caries, should be advised.

REVIEW OF THE LITERATURE

Kümmell[1] reported a series of six cases of post-traumatic spondylitis in 1895, which at that time he believed to be a progressive osteoporosis following traumatism of the vertebral column.

The first case observed by him occurred in a man, aged 22, who jumped from a moving train to the station platform. The upper portion of the spinal column was violently pulled backward, but he did not fall. Immediately following the accident he suffered severely with pain in the back, which necessitated his remaining in bed for a few days, but he was then able to resume his work as a salesman. Six months later severe pain, localized over the traumatized area of the spine and also radiating down both extremities, required his obtaining surgical aid. On examination, the patient presented the typical clinical appearance of spondylitis with a well marked and angular deformity of the eighth and ninth thoracic vertebrae. Horizontal fixation and rest in bed for a short period gave prompt relief from the pain, and the wearing of a plaster-of-Paris corset resulted in a complete arrest of the disease, but with a permanent kyphosis of the spine in the affected dorsal region. The functional result was excellent, and he was able to resume his work without discomfort, wearing for several months a supporting apparatus. Five other cases occurring in young adults were included in the original report; all of the patients made a satisfactory recovery, but with a permanent deformity of the spine.

Grawitz[3] refers to these cases as benign spondylitis following traumatism, and records two cases which were under his personal observation. In one of these, which occurred in a man, aged 22, a partial paraplegia developed shortly after the accident, but with rest in the horizontal position and complete fixation of the column, the paralysis disappeared; but a gibbosity of the seventh to the ninth dorsal vertebrae remained.

In the same year, Kaufmann[4] added one case to the literature. He believed that in all cases a vertebral fracture exists, and he suggested the term "secondary traumatic kyphosis" to be applied to this type of spinal injuries.

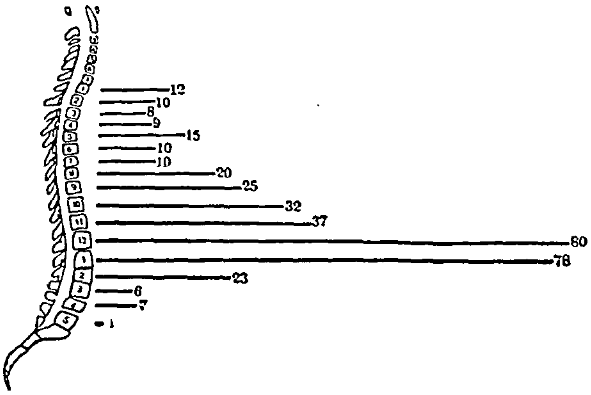

Fig. 1.—Frequency of fracture in different regions of the spine. (Diagram from Clinics of John B. Murphy; reproduced from article by Dr. J. Warren Sever, Surg., Gynec. & Obst. 22:338 [March] 1916.)

Kirmisson[5] reported two cases of vertebral deformities due to unrecognized spinal compression fracture occurring in persons aged, respectively, 18 and 11 years:

A boy, aged 18, sustained an injury to the spine by falling from a tree a distance of 15 feet; he struck on his back, and shortly after the accident there was a swelling localized over the lower dorsal area. After a month's rest and subsidence of the local swelling he returned to his work, but in the course of two months the acute pain returned, and the development of an angular deformity of the twelfth dorsal and first lumbar segments established the diagnosis of compression fracture with delayed spinal symptoms.

A boy, aged 11, fell from a grain stack but was able to walk immediately after the injury; in two weeks, however, a distinct deformity of the seventh, eight and ninth dorsal vertebrae developed, with a marked compensatory lordosis.

In 1896, Henle[6] contributed a series of four cases occurring in young adults.

In the first case, a man, aged 35, stepped on the ice and fell backward, striking on his back, and experiencing a severe pain in the middorsal region of the spine. The localized pain subsided in a few days, but shortly afterward returned with increasing severity. Rest in the dorsal position gave him relief from the pain, but on the slightest movement of the

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[2] Mauclaire and Burnier: Arch. gén. de chir. 6:274, 1912.

[3] Grawitz: Charité-Annalen 20:169, 1895.

[4] Kaufmann: Monatsschr. f. Unfallheilk., 1895, No. 6, p. 169.

[5] Kirmisson: Rev. d'orthop. 7:481, 1896.

[6] Henle: Arch. f. klin. Chir. 52:1, 1896.

> spine the pain returned, referred not only to the spine but also to the abdomen and lower extremities. Immobilization in a plaster-of-Paris corset apparently gave no relief, and in seven months a small, angular kyphos was noticed in the dorsal region, with its apex at the tenth segment. This deformity was only slightly tender on pressure, but when the patient assumed the standing or sitting position, and when making pressure on the head, the pain was severe and always localized over the traumatized area. After several months of complete fixation in plaster-of-Paris jackets he was able to resume his occupation as an engineer.

This case was of particular interest because the early diagnosis when first observed was considered to be one of neurasthenia. This case emphasizes the fact that even in comparatively slight injuries traumatic spondylitis can develop.

Staffel[7] and Kirsch,[8] in 1897, each reported one case of Kümmell's disease in young persons coming under their care. In the same year one case was added to the literature by Vulpius.[9]

Schneller's[10] case is of particular interest:

> A man, aged 43, while loading wood on a carriage, suddenly experienced a very severe pain in the back while lifting a heavy piece of lumber. He was obliged to remain in bed for several days; after a number of weeks he noticed improvement both as to the absence of severe pain and in his ability to walk with the aid of a cane. Fifteen months after the original injury, a well marked kyphosis appeared in the midthoracic spine, with the gradual disappearance of the pain. The diagnosis of post-traumatic spondylitis, due to indirect violence, was definitely determined.

Godonneche[11] contributed one case to this subject in 1897, and Heidenhain[12] added eleven cases, in all of which the secondary changes occurred soon after the original traumatism to the spine. In one of these cases a tuberculous spinal caries, secondary to the original vertebral fracture, occurred.

Wagner and Stolper's[13] report, published in 1898, is of unusual importance, for in the cases observed by them, no vertebral fracture was demonstrated, although both patients presented the true type of traumatic spondylitis, involving the lumbar segments.

Transitory paraplegia was present in the case recorded by Froelich[14] in 1898; and in Hattemer's[15] cases, in addition to the secondary traumatic kyphosis, there was present also a dislocation of the compressed vertebral segments.

Woerner[16] added seven cases to the literature on this subject. In his opinion, the diagnosis of traumatic spondylitis is not dependent entirely on the formation of a gibbus, although this deformity is usually present. Scoliosis is frequently present and can be easily demonstrated by roentgenography. In many instances the angular deformity can be prevented if the cases are early recognized and suitable immobilizing apparatus is applied.

The youngest case of Kümmell's disease recorded up to the year 1900 was reported by Hergens[17] in a child, aged 8, who, following a fall, complained of backache. Four days later, an angular deformity of the sixth dorsal vertebra was seen which was painful on pressure and increased in size, although an immobilizing corset was applied shortly after the accident.

Golebiewski's[18] case of healed compression fracture of the eleventh and twelfth dorsal vertebrae was complicated by an injury of the spinal cord, and occurred in a laborer, aged 28, who fell from a wall a distance of about 20 feet. Following the accident and owing to the compression of the bodies of the vertebrae, the patient's height was diminished about 4 cm.

Ruland[19] contributed seven cases, reported in 1900. The youngest case in his series occurred in a 16-year-old boy.

Bonsdorff[20] contributed two cases coming under his observation. He called attention to the extreme importance of careful examination of these cases in accident insurance practice.

Three cases were reported by Wegner[21] in 1901, and in the same year Krueger[22] contributed one case of traumatic spondylitis caused by a forcible rotation of the spine, resulting in a marked scoliosis and the development of an angular deformity of the third and fourth lumbar vertebrae.

In 1903, Brehmer[23] added one case, and in the same year Brodnitz[24] stated that the roentgenographic findings in the case observed by him showed no abnormal vertebral change at the time of the accident or even as late as eight months after the injury, although, clinically, four months following the accident a distinct angular gibbus appeared at the first lumbar vertebra.

Reuter[25] speaks of the pathologic changes in a case of "spondylitis traumatica," in which there was seen, at postmortem, rupture of the spinal ligaments, luxation of the bony trabeculae and extensive hemorrhage into the bony cellular tissue, and compression of the vertebral bodies.

In Beduschi and Bossi's[26] case, paralysis of the right leg, with involvement of the bladder and rectum occurred; under treatment, it gradually disappeared.

In Chappatt's[27] series of seven cases, the youngest case was in a lad of 12 who fell from a tree a distance of about 10 meters; after a fortnight, lumbar pains developed, and the formation of an angular kyphosis of the twelfth dorsal and first lumbar vertebra occurred.

Grisel,[28] in 1907, laid emphasis on the difficulties that may arise in differentiating tuberculous caries from traumatic deformities of the spine of the Kümmell type.

Petersen[29] laid stress on the differentiation between Pott's disease, preceded by trauma, and traumatic spondylitis with delayed gibbus formation.

Guillain and Laroche[30] contributed one case in 1908, and Markus[31] reported one case in which, in addition to the angular kyphosis, there was a slight S shaped spinal scoliosis.

In 1909, Brauer[32] published the report of two cases of Kümmell's disease involving the cervical spine.

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[7] Staffel: Monatsschr. f. Unfallheilk., 1897, No. 7, p. 204.

[8] Kirsch: Monatsschr. f. Unfallheilk. **4:** 140, 1897.

[9] Vulpius: Monatsschr. f. Unfallheilk. **4:** 201, 1897.

[10] Schneller: München. med. Wchnschr., 1897, No. 2, p. 39.

[11] Godonneche: Thèse de Paris, 1897.

[12] Heidenhain: Experiences with Traumatic Spondylitis, Monatsschr. f. Unfallheilk. **4:** 65, 1897.

[13] Wagner and Stolper: Deutsch. Chir. **40:** 244, 1898.

[14] Froelich: *Rev. médicale de l'est.* **30:** 284, 1898.

[15] Hattemer: Beitr. z. klin. Chir. **20:** 103, 1898.

[16] Woerner: Fortschr. a. d. Geb. d. Röntgenstrahlen **2:** 83, 1899.

[17] Hergens: Inaug. Diss., Leipzig, 1900.

[18] Golebiewski: Lehmann's Handaltanten **19:** 158, 1900.

[19] Ruland: Inaug. Diss., Bonn, 1900.

[20] Bonsdorff: Traumatic Kyphosis with Gibbus Formation, Finska läk-sällsk. Handl. **42:** 191, 1900.

[21] Wegner: Deutsch. militärarztl. Ztschr. **30:** 157, 1901.

[22] Krueger: Tr. Gesellschaft für Natur, und Heilkunde zur Dresden, 1901; München. med. Wchnschr., 1902, No. 10, p. 421.

[23] Brehmer: Inaug. Diss., Greifswald, 1903.

[24] Brodnitz: Centralbl. f. Chir. **30:** 902, 1903; Tr. II Congress of German Society for Orthopedic Surgery, June, 1903.

[25] Reuter: Arch. f. Orthop. **2:** 137, 1904.

[26] Beduschi and Bossi: Arch. di Orthop. **21:** 353, 1904.

[27] Chappatt: Thèse de Nancy, 1906.

[28] Grisel: Rev. d'orthop. **8:** 167, 1907.

[29] Petersen: Inaug. Diss., Berlin, 1907.

[30] *Guillain and Laroche: Bull. et mém. Soc. méd. d. hôp. de Paris, 1908*, p. 516.

[31] Markus: Aerztliche Sachverständigen Zeitung, 1908, No. 22.

[32] Brauer: München. med. Wchnschr., 1909, No. 8, p. 425.

Redard,[33] in his lecture delivered at the Second International Medical "Accident Congress" in 1909, reported two cases of industrial accidents resulting in injuries of the vertebral column, and mentioned three cases that came under his treatment. The roentgenographic findings in all of his cases showed a collapse or compression of the affected vertebrae. He recognized as a true type the post-traumatic vertebral deformities, described by Kümmell, but added that this type must be distinguished from the remote vertebral deformities which follow true compression fractures of the vertebrae and which are characterized by pronounced gibbus formation or a lateral deviation of the vertebral column.

Maingot[34] added one case to the literature in 1910; two cases were recorded by Schanz[35] in the same year.

That traumatic spondylitis occurs in very young children was observed by Temkin[36] in 1910, reporting a case of a child who at the age of 10 years had fallen backward from a ladder, a distance of 1.5 meters, injuring the spine. Eighteen months after the accident there was a distinct scoliosis and a lateral compression of the body of the fourth lumbar segment.

In 1911, Schulz[37] reported twenty-one typical cases of traumatic spondylitis which came under his observation at the Hamburg-Eppendorf General Hospital. In this series he stated that the original injury to the spine was, in the majority of cases, relatively slight. Schulz referred to the medicolegal aspect, which sometimes may be encountered, and reported one case in a man, aged 35, who fell from a high scaffolding, sustaining a vertebral fracture, in which the angular deformity of the spine did not develop until several months after the original trauma, when there appeared a definite Kümmell kyphosis.

In 1911, Imbert and Vial[38] mentioned the fact that one year after Kümmell's original report, Verneuil contributed one case, which he demonstrated before the Paris Medical Academy. This case was of particular interest, for the original diagnosis was considered to be rheumatism, affecting the abdominal viscera and the abdominal muscles, although a previous history of extreme muscular effort on the part of the patient in trying to avoid falling on the ice had been elicited. Four months after this injury, a slight angular kyphosis appeared at the ninth dorsal vertebra.

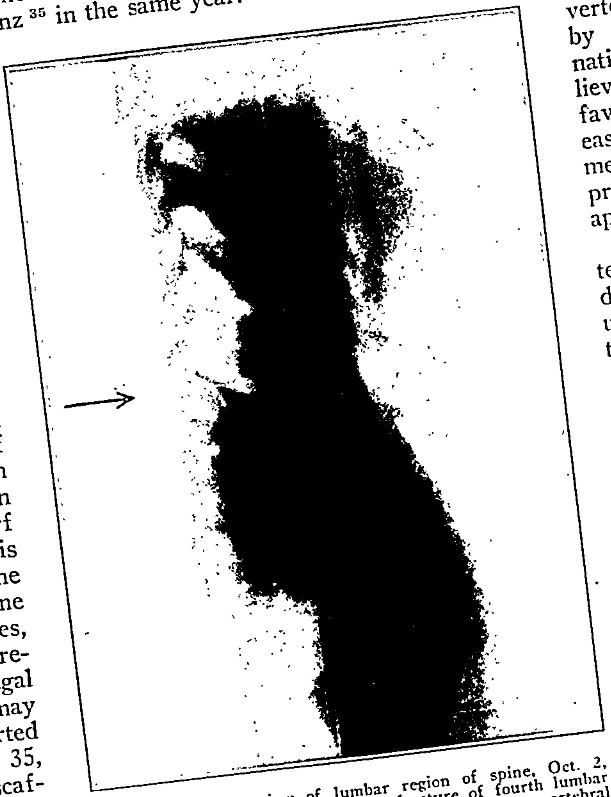

Fig. 2.—Lateral view of lumbar region of spine, Oct. 2, 1922, showing marked compression fracture of fourth lumbar segment, with thinning and compression of intervertebral disks and angular deformity of fourth and fifth lumbar vertebrae.

Verneuil[39] mentioned those obscure cases of vertebral fracture which are caused by violent muscular contractions and are frequently unrecognized, in which a very common symptom is that of girdle or neuralgic pains in the thoracic region, with a delayed gibbus deformity. He reported two cases, illustrative of this type of spinal accident.

De Anna[40] added two cases to the literature occurring in middle aged adults, and Achard and Flandin,[41] one case.

Mauclaire and Burnier[42] described two cases of Kümmell's disease which was previously known of by the French surgeons as "insidious vertebral fractures." In one of their cases a scoliotic lumbar curvature, due to a right lateral displacement at the level of the third lumbar segment and a compression of the lumbar body and flattening of the intervertebral disks, was shown by roentgenographic examination. These writers believe that the prognosis is favorable in Kümmell's disease provided early treatment is instituted and proper supporting apparatus applied.

In Mallin's[43] case, reported in 1913, the angular deformity did not develop until eighteen months after the spinal injury.

Ewald[44] stated that, in the case observed by him, pain in the traumatized area of the spine did not appear until nine months after the accident, and was coincident with the appearance of a spinal deformity. Roentgenographic examination showed a well defined vertebral fracture.

Balthazard,[45] in 1914, described a case of traumatic spondylitis, which resulted in the death of the patient six months after the accident. The necropsy findings showed a marked spinal scoliosis, with a compression fracture of the anterior portion of the body of the eleventh dorsal vertebra, while the posterior part of this segment was intact, owing to extreme forward flexion of the spine at the time of the injury. In addition to the vertebral compression fracture there was a rupture of the transverse processes, but the articular processes were not fractured. He believes that the exact pathogenesis of this disease is still theoretical, and that in many cases no vertebral fracture can be demonstrated. This is the first complete report of the postmortem findings recorded in the surgical annals on this subject.

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33. Redard: Ztschr. f. orthop. Chir. **24:** 80. 1909.
34. Maingot: Tr. Soc. de radiol. méd. de Paris, 1910, p. 244.
35. Schanz: Jahresb. d. Ges. f. Natur. und Heilk., 1910.
36. Temkin: Thèse de Paris, 1910.
37. Schulz: Beitr. z. klin. Chir. **27:** 363, 1911.
38. Imbert and Vial: Presse méd. **19:** 561, 1911.
39. Verneuil: Bull. de l'Acad. de méd., 1892, No. 39, p. 496.
40. De Anna: Inaug. Diss., Berlin, 1911.
41. Achard and Flandin: Gaz. d. hôp. **84:** 862, 1911.
42. Mauclaire and Burnier: Arch. gén. de chir. **6:** 274, 1912.
43 Mallin: Hospitalstid. **6:** 105. 1913.
44. Ewald: Med. Klin. **10:** 886. 1914.
45. Balthazard: Rev. de chir. **19:** 276, 1914.

Frazier[46] records the case of a man, aged 42, who came under his supervision. He points out the difficulties that may arise in clinically differentiating these cases from such spinal conditions as hypertrophic arthritis, the ankylosing forms of spondylitis, and the hysterotraumatic injuries of the vertebral column.

Glaser[47] contributes one case:

> A man, aged 55, met with a severe accident by being thrown from his bicycle, striking his head and neck violently against the ground. The diagnosis arrived at immediately following the injury was a cerebral concussion. Five years after the original trauma he was admitted to the hospital, complaining chiefly of pain in the cervical spine. This pain was very severe and was referred to the neck and shoulders, extending over the entire skull. Extreme pain and tenderness was elicited on pressure over the cervical spine from the first to the fourth segments. The Wassermann reaction was positive, and intravenous injections of neo-arsphenamin were administered, which gave no improvement. Death resulted suddenly.

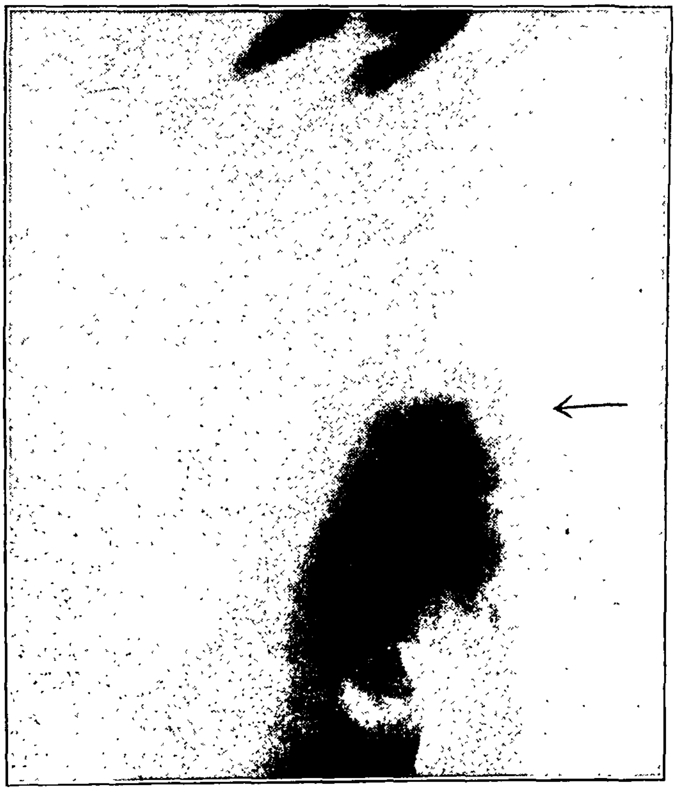

Fig. 3.—Lateral view of lumbar region of spine, March 24, 1923, showing marked compression fracture of fourth lumbar segment, with thinning and compression of intervertebral disks and angular deformity of fourth and fifth lumbar vertebrae.

> The necropsy findings showed the cervical vertebrae from the first to the fourth to be roughened, and from this roughened area exuded a yellowish purulent fluid. The vertebral bodies were eroded, roughened and necrotic. The spinous and transverse processes were also necrosed. The microscopic findings showed a chronic inflammatory process, with the formation of fibrous masses and atrophy of the spongiosa of the bone. No syphilitic or tuberculous changes were seen.

This case is of particular importance, owing to the fact that the necropsy findings and microscopic examinations were carried out in detail, and also that the stage of "relative well being" lasted for nearly six and one-half years following the accident. The patient during this stage compained only of vertebral rigidity, confined largely to the cervical spine.

Braun[48] contributed one case in 1919, and Duschak[49] reported one in which he stated that the roentgenographic examination was negative following the injury, and that no compression fracture of the affected vertebrae could be seen.

Ferrannini[50] reports one case, which he considers typical of Kümmell's disease, that presented compression of the vertebral bodies and the formation of a double kyphosis of the lumbar spine.

In 1920, Baker[51] added to the literature a compilation of seven cases of Kümmell's syndrome. In his conclusions, he stated that a compression fracture of the spinal bodies is frequently not diagnosed or is incorrectly diagnosed at the time of the original injury, and that the clinical symptoms may not appear until long after the vertebral trauma. The prognosis depends on the early diagnosis and the institution of proper treatment.

In 1921, Gorsch[52] gave the clinical history and roentgenographic findings of a case of compression fracture of the first lumbar vertebra with delayed symptoms, occurring in a man, aged 56, in whom the roentgenograms taken shortly after the injury showed no vertebral fracture. The crushing or compression of the first lumbar body was clearly revealed, however, three months after the accident, as was also the development of the angular kyphosis. He adds that "in Kümmell's disease there are none of the usual signs of spinal fracture present."

In 1921, Kümmell[53] contributed a second article on the subject of post-traumatic spondylitis. He states that since his original publication there have been many misunderstandings of the exact nature of the disease; and he again clearly outlines the clinical picture presented in this type of bone injury. He quotes the experimental work of Lange, who has definitely shown that the vertebral bodies break down or become compressed after a certain amount of weighting pressure is exerted on them, but that this collapse is preceded by very definite processes. First, the weighting pressure produces no demonstrable changes in the vertebral spinal segments until a certain pressure has been exceeded, and when this limit is reached the bodies become compressed according to the weight exerted on them; and, with the removal of this weighting, they either resume their original shape and configuration, or become permanently collapsed. It is natural to assume that with this compression the delicate bony framework will be damaged or destroyed and infiltrated with blood.

His conclusion, therefore, is that in some cases of traumatic spondylitis a compression vertebral fracture does not exist, but that a forcible traumatism to the spongiosa of the bodies of the vertebra suffices for the gradual production of atrophy of the bony framework and the slow compression and collapse of the vertebral body. Roentgenographic examination of these cases a short time after the injury shows no abnormal findings, but after months or even years elapse there is seen by roentgenograms a collapse of the body of the vertebra and the compression also of the intervertebral disks.

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[46] Frazier: Treatise on Surgery of the Spine and Spinal Cord, 1918; Traumatic Spondylitis, p. 449.

[47] Glaser: Med. Klin., 1918, No. 15, p. 360.

[48] Braun: Handbuch der Unfall-Medizin **1**: 545, 1919.

[49] *Duschak:* Wien. klin. Wchnschr. **30**: 1599, 1920.

[50] Ferrannini: Stud. Riv. di Sc. Med. **11**: 41, 1921.

[51] Baker, R. H.: Surg., Gynec. & Obst. **31**: 359 (Oct.) 1920.

[52] Gorsch: Ann. Surg. **73**: 360 (March) 1921.

[53] Kümmell: Arch. f. klin. Chir. **118**: 876, 1921.

He states that it is probably not correct to consider a "rarefying osteitis" following traumatism to the spine as the origin of the disease, but that this cause must be sought in the most "variegated gradations" as a result of the spinal injury, of which a compression fracture is one but not the only contributing factor. In the mildest type there may be only a slight contusion of the spongiosa of the body of the vertebra, with hemorrhagic infiltration and periosteal thickening. Kümmell lays stress on the fact that the characteristic feature in this symptom complex is that the primary traumatism presents no clinically demonstrable lesions, and distinct clinical symptoms develop after months or years following the original trauma.

REPORT OF AUTHOR'S CASE

History.—A boy, aged 9 years, who was born in Illinois, and who had resided in Colorado for the past fourteen months, was one of fifteen children, six of whom were living. The father was living and in good health with the exception of having occasional attacks of bronchial asthma. The mother was living and was supposed to have had pulmonary tuberculosis and was sent to Colorado. The clinical and roentgenographic examination made of the mother on a recent date showed no evidence of a pulmonary tuberculous lesion. The child had had measles and diphtheria in early life. With the exception of these illnesses he had always been a healthy, robust boy up to the time of his sustaining a spinal injury.

In August, 1918, when 5 years of age, he fell over a heavy iron wash tub, striking the lower portion of the spine against the tub and a cement floor.

Immediately following the accident he was unconscious for five or ten minutes, and on regaining consciousness he complained of severe pain in the back and thighs. The skin over the traumatized area showed no abrasion, and there was no ecchymosis. There was no involvement of the bladder or rectum. He was kept in bed for two days, and with the complete subsidence of the pain he was allowed to be up and about, and was able to play like other children. One week after this injury a swelling of the soft parts over the lumbar area was seen, which disappeared in a few days with the use of hot compresses.

Two months after the accident he complained of severe pain in the lower portion of the back, radiating down the anterior and median aspects of the thighs to the knees. Motion of the spine, particularly in forward bending, elicited great pain, which was more severe at night. There was no abdominal discomfort, and the bladder and rectum were not involved. There was no evidence of paralysis of the lower extremities. At this time an angular deformity was noticed by the mother, situated in the region of the lower lumbar vertebra, which was painful on pressure. Rest in bed in the horizontal position for a period of about two weeks gradually gave relief from the pain, both local over the spine and from the referred pain down the thighs. The permanent angular kyphosis remained.

On account of the increase in the size of the kyphosis, the child was brought to Dr. Hart of Denver for examination, who referred the case to me.

The first roentgenograms taken by Dr. Hart showed no evidence of tuberculous caries, but the lateral view of the lumbar spine demonstrated a compression spinal fracture of the fourth segment, and thinning of the intervertebral disks between the fourth and fifth lumbar vertebrae.

Examination.—Oct. 22, 1922, the boy was moderately well nourished, and walked without the support of apparatus, with no evidence of a limp. The left scapula was more prominent than the right.

There was an angular kyphosis involving the fourth and fifth lumbar segments, with slight pain on pressure over the spinous process of the fourth segment. There was no infiltration over the gibbosity and no evidence of psoas spasm. There was no deviation laterally of the spinous processes. Motion of the vertebral column above the deformity was normal in flexion and on lateral or twisting movements of the spine. Hyperextension of the lumbar spine was restricted, but no pain was experienced in any motion of the column.

There were no motor or sensory disturbances in the back or lower extremities. Motion of the hip joints was normal.

The knee jerks and Achilles reflexes were normal, and there was no evidence of cauda equina involvement and no incontinence of the bladder or rectum. The heart, lungs and abdomen were normal.

The neurologic examination, made by Dr. C. S. Bluemel, showed no evidence of spasticity of the upper or lower extremities, and the gait was normal. There were no sensory disturbances of the abdomen, lower extremities or perineum. There was no ankle clonus, and Romberg's symptom was not present. There were no Gordon, Babinski or Oppenheim reflexes. The abdominal and cremasteric reflexes were normal.

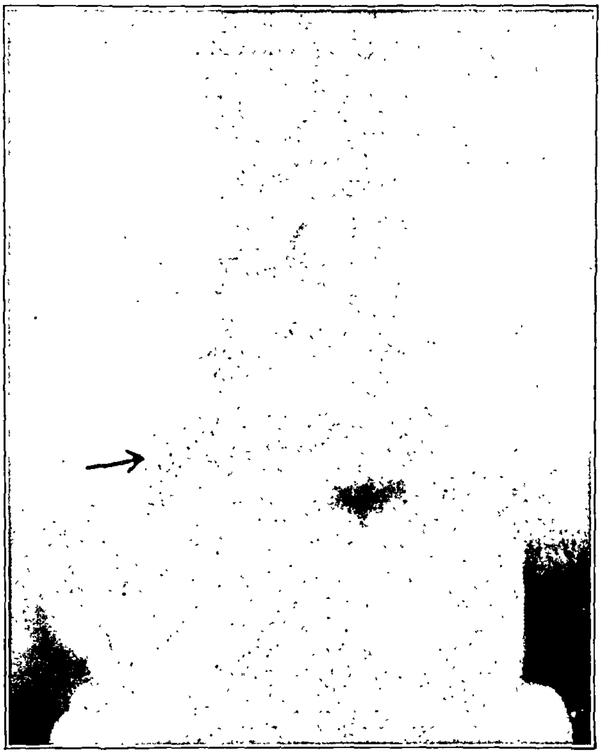

Fig. 4.—Anteroposterior view of lumbar region of spine, March 24, 1923, showing marked compression of intervertebral disk between fourth and fifth lumbar segments. The spinous processes are not fractured, and there is no lateral deviation of the lumbar column.

The pupils were large but otherwise negative. The eye grounds were normal. The skin was dry and slightly roughened. The result of the neurologic examination showed no cord or cauda equina or posterior spinal nerve root disturbances, and with the exception of the angular deformity the spine was negative.

The urine examination was negative, and the Pirquet skin reaction and the complement fixation test for tuberculosis were negative. The complete complement fixation test showed 100 per cent. hemolysis with all antigens. The blood Wassermann reaction was negative.

The second series of roentgenograms, taken in October 1922, and again in March, 1923, by Dr. S. B. Childs, showed no evidence of tuberculous caries of the spine.

Figures 2 and 3 are lateral views of the lumbar spine and sacroiliac joints. The spacing between the fourth and fifth lumbar vertebrae is partially obliterated, but there is no lateral deviation of the lumbar column. The spinous processes are not fractured.

In figure 4, an anteroposterior view, the lumbar spine shows a marked compression fracture of the fourth lumbar segment and thinning and compression of the intervertebral disks. The posterior angulation is seen involving the fourth and fifth lumbar vertebrae.

The lateral (Fig. 5) and posterior (Fig. 6) photographic views show the well marked angular kyphosis of the fourth and fifth lumbar segments, caused by the compression fracture in this region.

The clinical diagnosis at the time of the first examination and confirmed by repeated roentgenograms, taken several weeks apart, was that of post-traumatic spondylitis, or Kümmel's disease, having as the etiologic factor a compression spinal fracture of the fourth lumbar vertebrae.

Treatment and Results.—The treatment instituted at the time of the first examination was the application of a plaster-of-Paris jacket with the patient in the horizontal position. These jackets were removed and reapplied at frequent intervals in order that the case could be most thoroughly examined and any increasing deformity noted. As there has been no increase in the size of the kyphosis since the patient came under my care, it was not deemed necessary to perform an ankylosing spinal operation. The child is now up, and complains of no pain or discomfort but continues to wear a snug fitting plaster-of-Paris jacket to prevent further deformity.

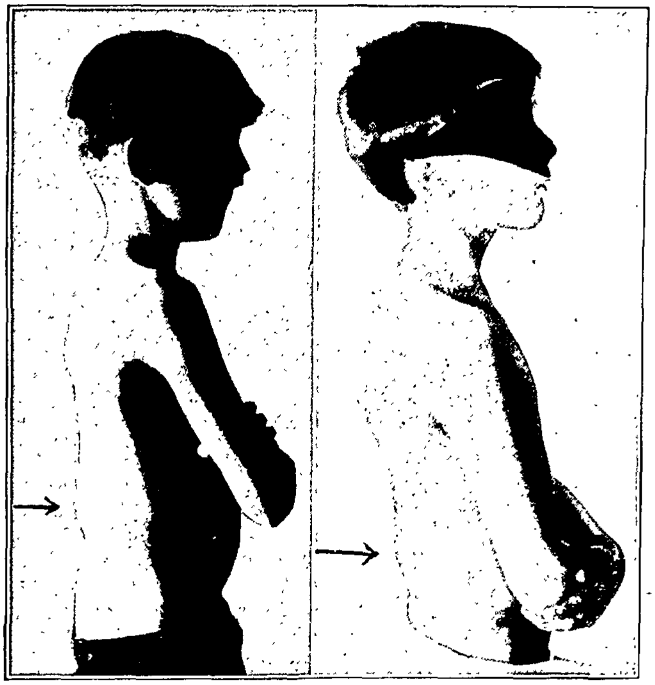

Fig. 5.—Marked angular deformity as seen from the lateral view.

In the review of the literature of the reported cases we find but five cases in which this symptom complex has occurred in young children. Kirmisson reports a case occurring in a boy, aged 11. In Hergen's report the child was but 8 years old. In Chappatt's and in Petersen's cases the children were 12 years of age, and in the clinical record of Temkin, the child observed by him was but 10 years of age. So far as can be ascertained, therefore, the patient who came under my care is the youngest child in whom the disease has been observed, having sustained the original spinal injury when 5 years old, which resulted in a compression spinal fracture with delayed symptoms, with a permanent angular kyphosis of the fourth lumbar vertebra.

CONCLUSIONS

1. Kümmell's disease is a distinct clinical entity, having as its basic origin a traumatism to the spine, which may be mild or severe.

2. This traumatism, resulting in post-traumatic spondylitis, may be caused by a direct or indirect injury to the vertebral column.

3. There are three distinct and frequently clearly outlined clinical stages of the disease, resulting in a permanent angular spinal deformity.

4. Compression fractures are not always present, but in some instances severe contusions of the spongiosa of the vertebral segments is sufficient to produce damage to the bony framework and the slow and gradual collapse of the spinal segments.

5. The roentgenographic findings show no demonstrable bony change immediately after the injury, but after several months or even years a collapse and compression of the bodies of the vertebra can be seen. Two views are essential, anteroposterior and lateral.

6. The disease may occur following traumatism to the spine at any age, but it is rarely seen in young children.

7. Oftentimes, repeated clinical and roentgenographic examinations are necessary in order that a correct diagnosis can be established. Spinal cord injuries are not usually encountered in cases of Kümmell's disease.

8. The prognosis depends on the early recognition of the disease, and the institution of adequate immobilizing apparatus. In some cases, an ankylosing operation of the spine is advisable.

Complete Complement Fixation Test with Blood Serum

Antigens	Hemolysis Per Cent.
Acetone insoluble lipoids of human heart	100
Kolmer's	100
Chol. alc. ext. of human heart	100
Gonococcus	100
Staphylococcus	100
Streptococcus	100
Pneumococcus	100
Tuberculosis, saline	100
Tuberculosis, Besredka	100
Wassermann reaction	Negative

9. The differential diagnosis from tuberculous spinal caries, back strains, spinal neuroses, hypertrophic arthritis, and the true ankylosing type of spondylitis must be carefully considered.

516 Majestic Building.

ABSTRACT OF DISCUSSION

Dr. Alfred Edward Gallant, Los Angeles: There is no doubt that there are more of these cases than are recognized. At the Los Angeles General Hospital, in the last four years, we have had sixty-six cases of fracture of the spine. Unfortunately, we cannot follow these patients. They are given the routine treatment of rest in bed and plaster jackets and braces, and allowed to go. I operated in a case of Kümmell's disease. A boy, aged 14, was playing in a sand pit. The earth caved in on him, crushing his spine. He was more or less improperly treated, from the history I was able to obtain from his people. He came to Los Angeles when he was 16. He had a very marked kyphosis of the dorsolumbar region, with a beginning pressure paralysis. He was put on a Whitman frame for five weeks in order to reduce some of the kyphosis. Then he was operated on and a double Albee graft was inserted. He was kept on a Whitman frame all the time, even during the operation.

Dr. William Arthur Clark, Pasadena, Calif.: A man, aged 50, for several years had had prickling and tingling sensations on the back and sides of both thighs. The only history of injury dated back twenty years. His symptoms began about ten years ago. He was unable to get any physician to take any interest in him at that time. Recently his symptoms have been getting worse and disturbing him a great deal. By putting him to bed, with traction, the symptoms disappeared for a while. He is all right while he is lying down. When he gets up the symptoms return. The roentgenograms show an extreme amount of callus around the fifth lumbar vertebra, evidently the results of the injury sustained twenty years ago when he fell off his horse and landed in a sitting posture on the base of his spine. He did not attribute very much importance to it at the time. I may be wrong in my assumption that this injury is the cause of his symptoms, but I have concluded that he had a compression fracture of the articular processes of the fifth lumbar vertebra which resulted in an exuberance of callus, causing neurologic symptoms.

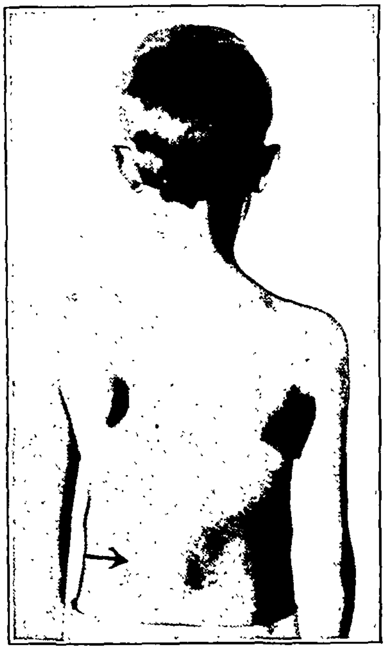

Fig. 6.—Angular deformity of the fourth lumbar segment.

Dr. Walter G. Stern, Cleveland: In the study of the etiology of Kümmell's disease, which, as I understand it, has nothing to do with compression fracture of the spine, but is a chronic and more or less localized hypertrophic traumatic inflammation of the spine with cord or root symptoms, I had an unusual opportunity to see the work of Professor Kalisko, professor of medicolegal pathology at the University of Vienna, and of the late Dr. George Schroll, assistant to Dr. Lorenz. They were working on the theory of Reidinger and Kümmell that this disease was due to minute traumas to the bone and to hemorrhage into the structures of the spine. They attempted to prove it. At that time we already had very good roentgenograms at the University of Vienna. The roentgenographer was allowed to make all the roentgenograms of living subjects that he pleased, and was asked to diagnose all the traumas to the spinal column. The neurologist was then called in, and was allowed to diagnose whatever lesions he could on the spinal column. The surgeon was called in, and was allowed to diagnose whatever symptoms of fracture or injury to the spine he could diagnose. At the necropsy the spinal column was carefully dissected and all the minute lesions were noted. The different symptoms that had previously been diagnosed were ruled out, and the surprising results showed that practically none of the minor anatomic lesions found in the spinal column had been diagnosed intra vitam. There were minute cracks and fractures into the spine, and there were minute hemorrhages into the bodies, laminae and articular processes of the spine; there were hemorrhages into the ligaments and the lateral structures of the spine, and hemorrhage in the intervertebral disks. So I believe the experiments of Kalisko and the unpublished work of his assistant Schroll will bear out the thought that Kümmell's disease is caused by minute multiple traumas to the osseous and ligamentary structures of the spine, the traumas causing mostly cracks and small hemorrhages.

Dr. Fosdick Jones, Denver: I was much interested in the presentation of Dr. Clark's case. I should judge from his description and from the roentgenograms that this was a case of Kümmell's disease, in which the delayed symptoms occurred several years after the original spinal injury. In Kümmell's last article on this subject (*Archiv für klinische Chirurgie*, November, 1921), he clearly demonstrates the fact which Dr. Stern has spoken of, namely, that the disease does not always result from a compression fracture of the spinal segments, but that in many instances trauma to the vertebral column without compression of the bodies is followed by rupture of the blood vessels and injury to the periosteum and atrophy of the spongiosa of the vertebral bodies, a gradual compression of these segments, with a permanent kyphosis developing. One writer reports two cases in which this disease occurred simply by muscular contraction, and not by direct trauma to the spine. The so-called spinal neurosis or railway spine must be differentiated from Kümmell's disease. It is this type of injury that not infrequently leads to medicolegal investigations.

OBSTRUCTION TO THE LYMPH CHANNELS BY SCAR[*]

LEO ELOESSER, M.D.
SAN FRANCISCO

Transplants of skin and the underlying soft parts, whether they are made as free grafts at one sitting, or as Italian plastic operations in several stages, are prone to be the seat of an annoying edema. Both the free graft and the Italian plastic transplant are islands of tissue completely surrounded by scar. In both of them edema is likely to persist for a long time, if not indefinitely; and also, when once it has disappeared, to recur. This edema is much less common in pedicled flaps, even in those in which only a very narrow pedicle is retained.

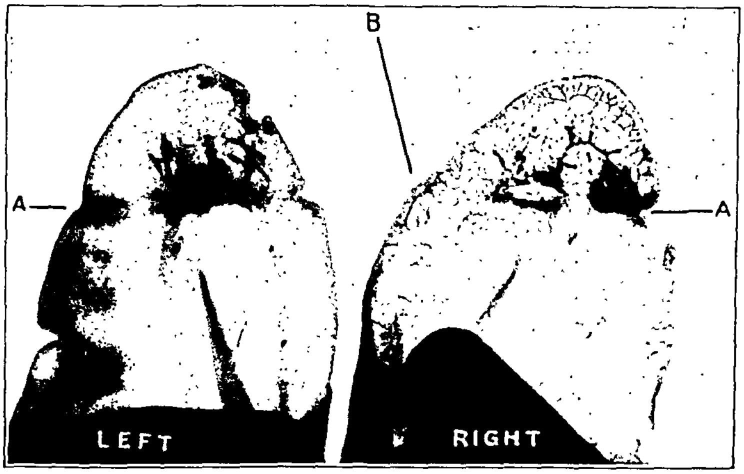

Fig. 1.—A suspension of barium sulphate has been injected into two rabbits' ears distal to a healed scar running across the ear. A roentgenogram of the left ear shows that the barium has been stopped by the scar. The scar on the right does not quite reach the left margin of the ear; while most of the barium stops at the scar, some of it has run along the fine lymphatic arcades at the unscarified edge and has reached the base of the ear. *A*, scar; *B*, unscarified edge.

In an attempt to inquire into the causes of this edema, I undertook some experiments with the help of Drs. Thompson, Eiskamp and Meherin. Once embarked on them, I have been led afield; questions have arisen that have a bearing on the causes of elephantiasic edema in general.

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[*] From the Division of Surgery, Stanford University School of Medicine.

[*] Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June,

Clinical observations made during the injection of procain solution for purposes of local anesthesia have some bearing on this subject. Scar tissue offers an almost impermeable barrier to the diffusion of a hypodermic injection. It is almost impossible to infiltrate scar tissue itself, so great is the force required. If one makes the injection alongside the scar, one sees the solution diffuse up and down but not across it. It is impossible to make a satisfactory infiltration anesthesia in scar tissue.

Theoretically, it might seem that the cause of the difference between pedicled flaps and free grafts, the reason why free grafts are liable to be or to become edematous while pedicled flaps are not, might lie in an obstruction presented by scar tissue to the flow of lymph. The difficulties of injecting solutions into scar tissue would be explained by the same theory.

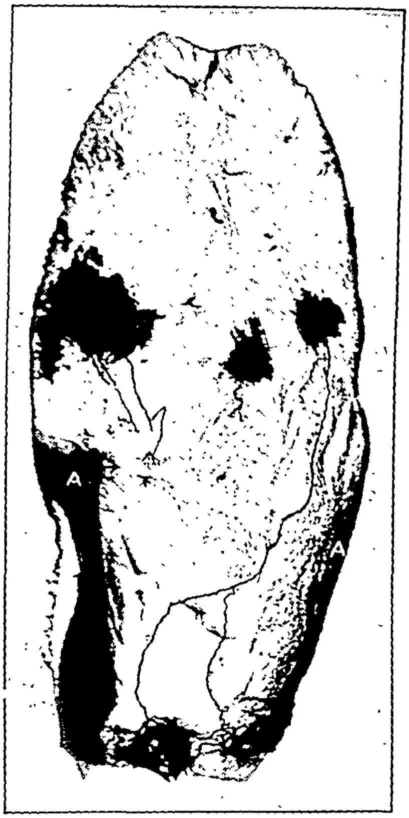

Fig. 2.—Rabbit's ear injected, distal to a scar, with India ink. The lymph channels on the left have not crossed the scar; the large channel on the right has, but its lumen, as it traverses the scar, is much narrowed. *A*, scar. Photograph by Dr. Blaisdell.

I have not been able to find out from the literature whether lymph vessels possess the power of regeneration and growth through scar tissue or not. Even the very complete older work of Marchand on the healing of wounds, on whose fundamental studies of the regeneration of all manner of tissues—blood vessels, nerves, bone, muscle and various glandular organs—most later work is based, contains no notes on the regeneration and growth of lymph vessels. At the Washington meeting of the American Surgical Association in 1921, Halsted reported some experiments on dogs. He had in several stages severed all of the soft parts of an extremity down to the bone. He was unable to produce an edema by this means. These limbs, whose whole cross section at a certain level, excepting only the bone, consisted of scar, did not become edematous. He concludes, therefore, that an aseptic scar offers no obstruction to the return flow of lymph.

Ignorant of these experiments, which Dr. Mont Reid had performed for Dr. Halsted, I had attacked the problem in another way. Halsted's object was completely to sever all the lymph vessels of a limb. We chose, instead of a limb, the severance of whose lymphatics offered considerable technical difficulty, the rabbit's ear. We severed the skin of the dorsum only, considering that an incision through one surface of the ear alone would accomplish a complete scarification of the lymph vessels of this surface. The two surfaces of the ear are separated by a broad, thin leaf of cartilage; no lymph vessels traverse the cartilage. There is therefore no direct lymphatic connection between the two surfaces of the ear. We made incisions through the dorsum of rabbits' ears down to the cartilage, but usually not through it. These incisions were allowed to heal, and after varying intervals, a suspension of barium sulphate or India ink was injected under the skin of the ear distal to the scar.

It was difficult to inject the barium sulphate into the lymph vessels. The suspension often spread through the subcutis and gathered about the site of injection as an irregular blob. In a few animals, however, we were able to inject the vessels themselves. In all of them the scar offered a complete obstruction to the passage of barium. In one (Fig. 1) the barium filled not only the larger lymph vessels accompanying the central artery, but also the finer arcades at the very margin of the ear. The scar did not quite reach the margin of the ear, so that the marginal arcades remained unobstructed and the barium traveled in them to the base of the ear. Although it was not possible to make satisfactory photographs of the specimens injected with India ink, the ink was better suited to our purposes than the suspension of barium sulphate.

When the India ink was injected slowly, first a round spot of black was observed to appear beneath the skin; suddenly from this spot, at one point or another, the ink darted into a lymph vessel, along which it ran rapidly, sometimes spreading from a main large vessel into smaller branches, sometimes entering simultaneously several smaller branches near the site of injection. It rapidly coursed along the vessels until it reached the scar, when it stopped. If one continued to inject, it fairly slowly made its way across the scar, evidently along minute constricted channels; but once the passage of the scar was accomplished it again ran along rapidly, filling out the large lymph channels as before. In some animals the incision was not carried completely across the ear: when these ears were injected, the ink would run up to the scar, and then instead of crossing it, would deviate to one side or another, or would flow backward along small channels until it struck the unscarified portion of the ear, along whose uninterrupted lymph spaces it would proceed and by this route fill out the channels in the distal part of the ear.

These experiments, then, showed that scar causes a relative stenosis of the lymph channels, obstructing the passage of grosser particles (barium sulphate) but not of finer ones (India ink). This obstruction persists in a scar several (four) months old.

It is noteworthy that although the lymph vessels of these ears were partially obstructed, the ears were not edematous. This is the same result that Halsted obtained. He was unable to produce an edema by severing the lymphatics. He considered that the chronic edema, the surgical elephantiasis seen after operations involving the lymphatics, such as operations for cancer of the breast with removal of the axillary glands, was due not to a severing of the lymphatics but to a chronic infection.

Following this lead, we made some further experiments whose final results I am not yet in a position to report, but which gave interesting information.

In the specimens mentioned above, the ink has beautifully outlined a well defined tracery of lymphatic vessels. *In a second series of rabbits we were unable* to inject the lymphatics at all.

The ears of these animals we inoculated with a strain of streptococci given us by Dr. Stone of Dr. Gay's laboratory at the University of California. The strain is one isolated by Dr. Gay from an empyema and mentioned by him in numerous publications. With it he has succeeded regularly and constantly in producing an erysipelas. A number of our animals died after inoculation of the fresher and more virulent strains. In from twenty-four to thirty-six hours their ears were red and intensely swollen, and hung down heavily at the side of the head. Those that died had effusions into the chest, pericardium and abdomen, some of them pneumonia. In those that survived, the erysipelas gradually subsided, leaving at the end of a week or ten days a barely perceptible edema and thickening of the skin of the dorsum of the ear. Injection of older and less virulent cultures produced much milder reactions, some almost no reaction. The scar offered no impediment to the progress of the erysipelas.

The lymph channels of these ears, both the more acutely erysipelatous ones and those whose erysipelas had subsided, could not be injected with ink. In some of them, when much force was used, a few channels filled with ink, but slowly and imperfectly. In most of them, no matter what the force, the ink spread diffusely around the site of injection without finding its way into any channels. The channels were completely blocked. It is curious and interesting to note that this block occurred, and that it was impossible to inject the lymphatics not only in the acutely and subacutely erysipelatous ears, but also in those whose erysipelas had subsided and which showed few, if any, signs of their past disease.

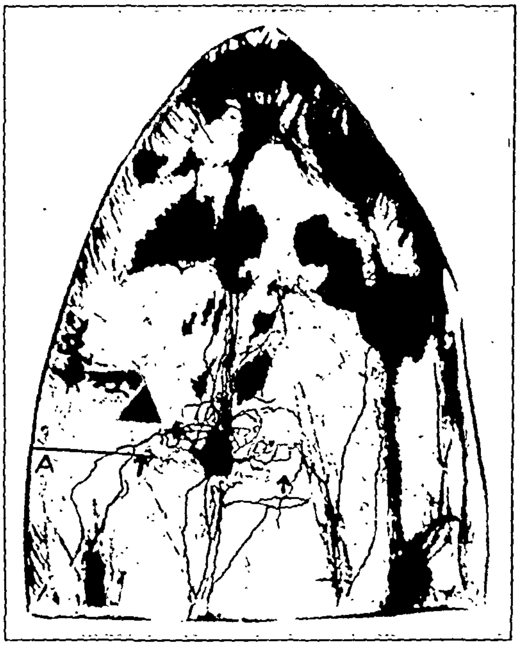

Fig. 3.—A short scar (its length indicated by the two arrows) traverses the whole thickness of the ear. The injection has traveled around the scar, but two fine lymph channels (the middle ones) cross it. During injection it could be seen that the tracery of lymph vessels distal to the scar filled, not by way of the fine vessels crossing the scar, but by the vessels to the right, entering these and then *running backward toward the scar through the middle* vessels. *A*, scar. Photograph by Dr. Blaisdell.

CONCLUSION

Further experiments on the production of elephantiasis by repeated injections of bacteria, and studies on the permanence of the inflammatory lymphatic block, are in progress. This much, however, I am able to report: A healed scar partially, but not completely, obstructs the lymphatics; there is some, but not a perfect regeneration of the lymphatics across it. Infection with a certain strain of streptococci (Gay) completely blocks the lymphatics.

135 Stockton Street.

ABSTRACT OF DISCUSSION

Dr. Walter G. Stern, Cleveland: The subject of edemas and swelling, particularly after injury, is of constant interest to us, but I do not think that they have been explained as yet, and I am sure that the beautiful experimental physiologic work done by Dr. Eloesser and others will one day shed some light on why these various edemas persist after injuries. It is well known that in many cases in which, for instance, a fracture of the tibia has occurred in a limb that had been previously normal in size and circulation, the edema has persisted as high as the middle of the thigh. Such a phenomenon has never been satisfactorily explained. Dr. Nathan of New York attempted to explain the edema and the swelling of the soft parts after comparatively simple fractures. His experiments showed that the soft parts were damaged for at least 2 inches above and below the site of injury. He believes that he can show how in certain simple Colles' fractures that are caused not by direct violence but by a little slip and a little pressure on the palm of the hand, as in a light person falling down or off a chair, the edema may persist in the fingers and the forearm 3 or 4 inches above the seat of the fracture.

Dr. LeRoy P. Kuhn, Chicago: When I first began to look into this subject, I was at a loss for a time to realize just what more could be accomplished than had already been done by Kondoleon in his operation—changing the lymphatic circulation. It seems to me that scar tissue offers the chief barrier and is the one thing we have to overcome in this work. Dr. Eloesser has shown in his experiments how the circulation can be forced through connective tissue. From the information that we now have on this subject, we are in a position to start out and do a great deal of work for the benefit of the patient. Of course, instead of having edema that has been formed and the ill effects resulting from it, with the enormous scars that we sometimes see, we may in time be able to bring about a much better result.

Dr. Emmet Rixford, San Francisco: There is evidence that lymph vessels have a considerable capacity for regeneration; but whether the new vessels will go through scar tissue in sufficient size to drain properly is a question to be determined. The time element is probably of enormous importance. We know clinically that in a great many of these cases, the edema is not permanent; that if one waits long enough, the edema, even in a very extensive transplant, often disappears. For example, I have one observation of a transplanted flap, measuring approximately 4 by 8 inches, from one leg to the other, which was edematous for about a year. The edema gradually lessened and finally disappeared altogether. One has to distinguish between real edema and apparent edema. If one transplants a piece of skin to a man's nose, it is very apt to appear afterward like a knob, something obviously stuck on. That is due to contraction of the scar at the base and in the periphery—pushing up the center—and may be called apparent edema, whereas the actual edematous features of it are comparatively slight. As the scar stretches, the prominence disappears and the transplant becomes flat. The eventual thinness of the scar in these cases probably accounts for the opening up of passages through it. It is, perhaps, a quantitative question. Blood vessels open up through scars in order to nourish these flaps that have been transplanted, and it seems reasonable to suppose that the vessels of the drainage system *will* also penetrate; but whether they open up enough to permit ready experimentation is another matter. The granules of India ink are exceedingly fine, but fluid may pass where ink granules may be stopped. One or two ideas occur to me in the matter of the relation of infections to the blocking of lymph vessels and spaces. I am thinking particularly of the edema that occurs in the skin after extensive infiltration of cancer of the breast. That edema is not primary; it occurs apparently only after Nature has done all it can to drain the area by means of the anastomoses of the lymphatic channels, the process being something like this: *If the lymph vessels which normally drain a certain area are obstructed by carcinoma, there is* lymph stasis; back pressure is effective in opening up the anastomoses of the lymph vessels, which are chiefly in the periphery. Then cancerous cells pass with the lymph into some neighboring system of lymphatics which is in turn blocked, and so on, until finally one after another of the available channels is obstructed and the drainage system breaks down when they are all obstructed. It is then that we have the pigskin edema. I can conceive that infection of a certain proportional degree of virulence might do the same thing, possibly by plastic exudation, possibly by actual physical destruction of the lining of the cells of the lymphatic spaces. The whole matter is exceedingly interesting. Dr. Eloesser's experiments, while not complete, are of determinative character and will be a most valuable contribution to this rather embarrassing subject.

Dr. Leo Eloesser, San Francisco: In speaking of the edema occurring after cancer of the breast, I had reference more to the edema of the arm, which is seen at varying intervals, not only immediately following operations, but also, sometimes quite inexplicably, a year or two or more after the operation, without any evidence of recurrence of cancer. It is this that Halsted so beautifully discusses in his last article on surgical elephantiasis. It seems to me, furthermore, that Dr. Rixford has probably hit the keynote when he says that the lymphatic obstruction due to scar is one of degree. I think these lymphatics are partially but not completely obstructed; and when some slight infection occurs which normal lymph vessels could carry off, the constricted vessels cannot, and edema results. This is only theory, and not as yet substantiated.

Future of Health Officer.—In these progressive times there is a magnificent future for the medical officer of health. "Prevention is better than cure," and though he will frequently be expected to prevent the unpreventable, and remove the irremovable his opportunities to improve the physical condition of the people will be abundant, and his influence for good on the health of the community enormous. In all circumstances, and on every possible occasion, he should strive to work hand and glove with the practitioners in his district—his work then will be far easier of accomplishment and more satisfactory in achievement than if a state of armed neutrality or open warfare existed between him and them.—E. B. Turner: *Lancet* 2:771 (Oct. 6) 1923.

PHYTOBEZOARS *

W. E. HART, M.D.

DECATUR, ILL.

The term phytobezoars is dervied from the Greek word *φυτόν*, a plant, and the Persian word bezoar, having reference to the concretions found in the stomach and intestines of animals. In ancient times, the bezoars, found in ruminants, were highly esteemed as a remedy against poisons and infectious diseases, being worn as a charm against evil spirits, snake poisons, plague, leprosy, epilepsy and dysentery. The bezoars found in the human animal, and removed at operation, are of four varieties:

1. The *trichobezoar*, or hair-ball, is the most common, a large number being reported. These bezoars are found in young girls, who have acquired the habit of chewing the ends of the hair, or that of rolling combings or pulled hair into small compass, and swallowing it. These masses often attain the size of a complete cast of the stomach.

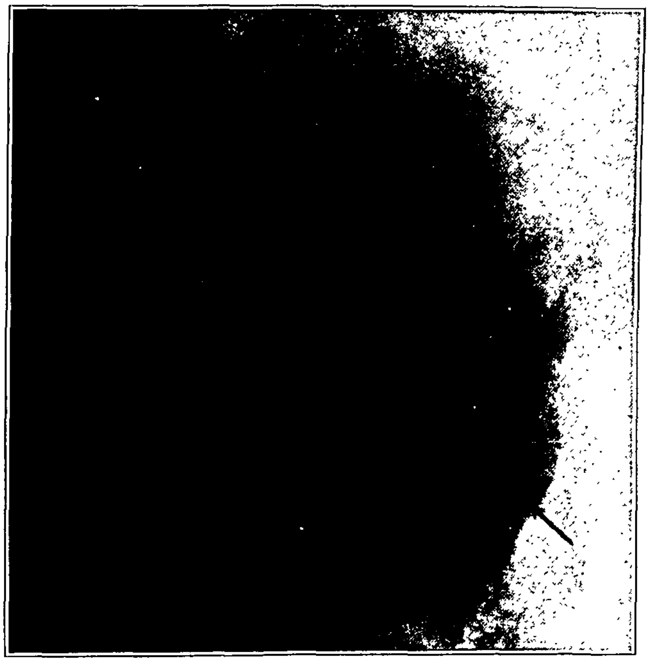

Fig. 1 (Case 2).—Mass in stomach.

2. The *trichophytobezoar* is a bezoar consisting largely of hair, with fibers of vegetable matter and food detritus enmeshed in the hair. These should be classed as *trichobezoar*.

3. The shellac concretion is found in painters, or workers in furniture factories where a strong alcoholic solution of shellac is used as a polish. This is sometimes swallowed straight, but those of more refined tastes add water, which precipitates the shellac. Cases have been reported by Hallas,[1] Tideman, Grauer, Friedlander and Vonnegut. These masses may attain a large size also, the two reported by Hallas weighing 1,745 and 2,000 gm., respectively.

4. The phytobezoar, or food-ball, so called, consists of the skins, seeds and fibers of fruit or vegetable matter, such as persimmons and prunes, salsify, celery with food detritus, such as starch granules, especially those of the potato, fat globules, striated muscle fibers, elastic tissue, fatty acid crystals, and squamous epithelium. These are rare, only five cases being recorded, those of Schreiber,[2] Peple,[3] Outten,[4] King[5] and Dr. Quain for Dr. Buckwill.[6]

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Hallas, E. A.: Ueber Schellackconcremente im Magen und Duodenum, Berl. klin. Wchnschr. **51**: 440 (March 9) 1914.

[2] Schreiber, J.: Ueber einem Phytobezoar in Magen einer Frau und dessen Diagnose; Operation; Heilung, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **1**: 729, 1896.

[3] Peple, W. L.: Globus Diospyri Virginianae Seminum, Report of a Case, Virginia M. Month. **48**: 596 (Jan.) 1922.

[4] Outten, W. B.: A Case of Double Gastrolith Removed by Gastrotomy; Recovery; Death by Phthisis Three Months Afterward, M. *Fortnightly* **6**: *445, 1894.*

[5] King, H. P., cited by Outten (Footnote 4).

[6] Quain (for Dr. Buckwill): Stomach of an Insane Patient Filled with Cocoanut Fiber, Which Caused Death by Perforation, Tr. Path. Soc. London **5**: 145 (May 16) 1854.

The eight cases reported in this series presented no hair and belong to this variety, *Diospyros virginiana,* or common persimmon, largely composing the mass in six of the cases, a considerable quantity of celery fibers in the seventh and prune and raisin skins and stems in the eighth. Schreiber reported a case in 1896 in which a mass was removed at operation from the stomach of a peasant woman. This mass measured 12 by 6 by 5 cm., with a maximum circumference of 20 cm., and was composed of plant cells and tangled compressed plant fibers, with scattered micrococci and masses of detritus. The patient related that she had been in the habit of eating large quantities of black-root, a variety of salsify. Dr. Charles Martin[7] of Dallas, Texas, related a case in which a bezoar was removed from the stomach of an inveterate tobacco chewer, which was thought to consist largely of tobacco. No inquiry was made as to the ingestion of persimmons. Persimmon-bezoars are compact masses, and may be roughly spherical or conical, with the apex somewhat flattened, bases smooth, edges rounded, and showing the effect of attrition, as in the case of Outten. They may have a wide base and narrow body, corresponding to the fundus or pylorus, They may even be cylindric, as in Case 7, owing to the fact that the mass passed through a gastro-enterostomy opening and lodged in the small intestine, causing obstruction.

They can be readily fractured with the fingers, having somewhat the consistency of putty or clay. The surface is usually greenish-yellow, or mottled light and dark brown, or they may be covered with a carbonaceous deposit.

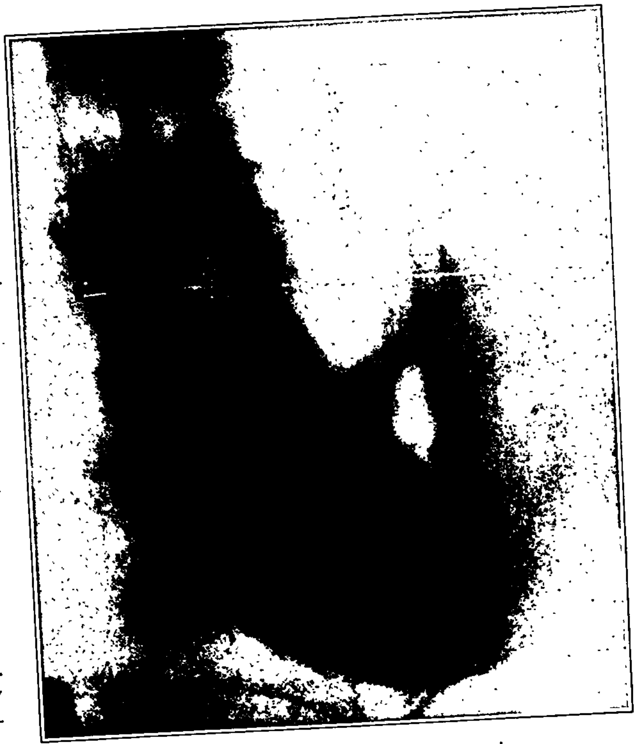

Fig. 2 (Case 3).—Appearance of stomach.

The seeds of the persimmon may be seen sticking out from the surface like peanuts in peanut candy. The average size is about 8 by 5 cm. They lose much of their size and weight when dried. In Outten's case, in which two bezoars were found, they measured 12.5 cm. (5 inches) and 6.9 cm. (2¾ inches) in length. The circumference at the base of each was 27.5 cm. (11 inches).

The combined weight, one-half hour after removal, was 1,560 gm. Four days later they weighed 617.6 gm.

Hooyker[8] of Groningen removed a phytobezoar at necropsy weighing 880 gm. (28 ounces). This mass had the outline of and almost filled the stomach, which was considered of normal size. The composition was not given. These bezoars will immediately rise to the surface of a receptacle containing an opaque meal, gradually settling as the barium precipitates. The odor has been described as that of fermenting fruit in the recent cases, but is usually that of stomach contents during digestion. On broken sections these show more or less homogeniety, of a brown or yellowish brown, with the seeds, skins and fibers distributed irregularly throughout. They may or may not have a seed or number of seeds forming a matrix. Digestants, of the strength usually tolerated by the stomach, have no effect on these masses.

ETIOLOGY

The mode of formation of these bezoars is not definitely known. One writer attributes their formation to the fact that the persimmon contains 14.10 per cent. of gums and pectin[9] which favors cohesion. The muscular action of the stomach undoubtedly is a factor in molding and compressing these masses. In three cases hyperacidity was present, and in two of these gastric ulcer was demonstrated, the ulcer history antedating the ingestion of the persimmons. It is possible that the hyperacidity may predispose to their formation. The skins and seeds may be seen on the surface of the bezoars, which suggests that little if any is added after their original formation.

SYMPTOMS

The symptoms are those of an acute gastro-enteritis of a severe type, occurring as a rule soon after eating the persimmons, or there may be a delay of a few hours to a day or two. With the subsidence of the acute symptoms, which may last several days, the patient may feel fairly comfortable, but there is rarely a complete return to normal. There may be nothing more than a sense of fulness or weight in the epigastrium, or there may at any time be a complete recurrence of all the symptoms. Attacks of diarrhea alternating with constipation of an obstinate type are common.

In the two cases complicated by gastric ulcer, the symptoms were attributed to the ulcer. In one case the lump could be felt by the patient while in the recumbent position. The pain may be referred to the kidney region or to the groin, and in one case to the right or left eye. Increase in temperature and pulse rate are usual during the acute attacks, and often during the exacerbations. Pressure over the tumor elicits no particular pain or even marked tenderness. Eating may increase or diminsh pain, even when complicated by gastric ulcer.

CLINICAL DIAGNOSIS

The value of a carefully taken history is here again emphasized in diagnosing this condition. The presence of a very freely movable tumor in the epigastric or umbilical region, which is not painful to pressure, unless complicated by some other pathologic condition such as gastric ulcer, and which may disappear and reappear during examination or on change of position of the patient, unless held in position, is significant. With this, the history of the ingestion of persimmons, followed by the symptoms of a severe type of gastro-enteritis, usually within a few hours, which subsequently subside, only to recur probably in a few days, makes a picture hard to reconcile with any other pathologic condition. The mass remains within the stomach and moves with peristalsis.

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[7] Martin, Charles: Personal communication to the author.

[8] Hooyker, cited by Bruen, E. T. (quoted by Outten, Footnote 4).

[9] Constituents of the Pulp of the Persimmon, Bull. 60, Purdue University Agricultural Experiment Station.

Urine, blood and stomach analysis show no changes in uncomplicated cases. There is no great loss of weight, as a rule, yet Schreiber reports one case in which the patient was emaciated, this case being the one in which a phytobezoar composed of salsify fibers was found. They have been known to pass through a gastro-enterostomy opening and lodge in the small bowel, completely occluding the lumen. Such was the condition found in Case 7. This occurrence illustrates how easy it is to overlook their presence, even when the stomach has been surgically treated for some other pathologic condition. The history of the patient's having eaten persimmons was obtained after the second operation. He had eaten persimmons once only, in October, 1920. Erroneous diagnoses have been made, such as floating kidney, carcinoma, tumor of stomach, movable spleen, hair-ball, polyp and adenoma.

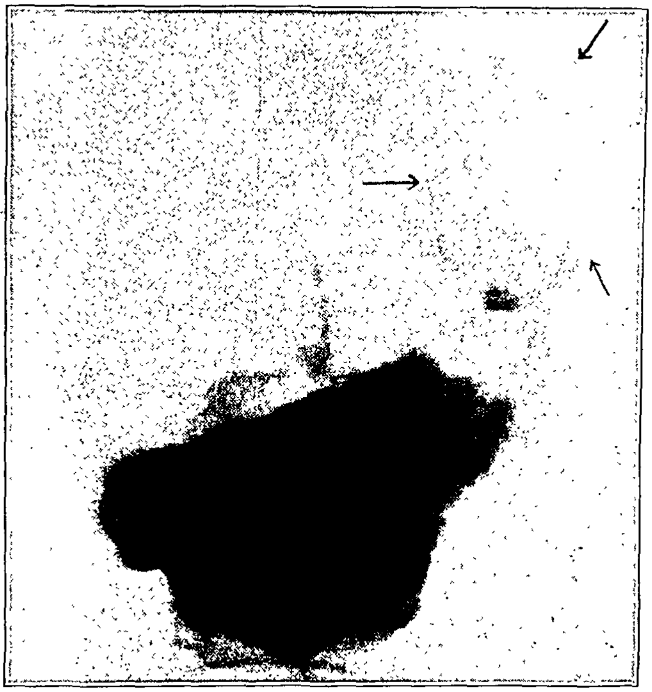


Fig. 3 (Case 6).—Ulcer crater on lesser curvature and mass in pars cardiaca.

The possibility of multiple bezoars must not be overlooked, as Outten reports that after removal of one bezoar, the stomach was sutured; when a second one, half the size of the first, was discovered, necessitating a second incision for its removal. It would seem hardly possible to overlook a body 2¾ inches in length and weighing 220.8 gm., but such are the facts.

The quantity of persimmons eaten bears no special relation to bezoar formation, as one patient swallowed, unintentionally, one unripe persimmon and within an hour two apples. It is possible that the character of the vomitus, being usually watery or of mucus, is due to the bezoar acting as a ball-valve in the cardiac antrum, preventing the ejection of food material.

ROENTGENOLOGIC

With the ingestion of the barium meal, the mass is likely to be seen in the antral portion of the stomach, depending somewhat on the size, as a clear round shadow, or light area, in the darker shadow of the barium. The appearance may suggest a large air bubble or filling defect, which may be seen to rise out of the antrum and float to the surface of the meal. Pressure over the stomach may displace the mass, which may rise above the level of the barium, showing as a rounded shadow in the clear air space in the fundus of the stomach.

When the bezoars are large, the meal may be seen to form as a cap covering something in the stomach, and canalize along the greater or lesser curvature, between the mass and the stomach walls.

The displacement of the intragastric mass can be observed as it is moved upward or sidewise by manipulation.

The shadow may disappear entirely, to reappear when bimanual pressure is exerted over the lower thorax. As the stomach empties, the barium streaked mass may be seen in the lower part of the pars cardiaca or pars media, depending on the relative size of the bezoar and of the stomach.

DIFFERENTIAL DIAGNOSIS

A. Trichobezoar:
  1. Female, with long hair; may get history of hair chewing or swallowing.
  2. May crepitate.
  3. Hair sometimes vomited, or may be found in the stools.
  4. Hair may be found following gastric lavage.
  5. Gradual formation.

B. Phytobezoar:
  1. Tumor extremely mobile.
  2. Males more common.
  3. Does not crepitate.
  4. Acute gastro-intestinal attack.
  5. Rapid formation.
  6. History of ingestion of certain fruits or vegetables.
  7. *May be canalization of barium in hair-ball and bezoar.*
  8. Hyperacidity common; may be complicated with ulcer.

C. Carcinoma:
  1. Filling defect constant.
  2. Hypo-acidity common.
  3. *Tumor not so freely movable.*
  4. Emaciation of variable extent.
  5. Age.
  6. Pain usually on palpation or pressure.

D. Other tumors of the stomach:
  1. These show constant defects.
  2. Nonmobile.
  3. Do not disappear and reappear.

E. Polyps with long pedicle:
  1. May get dimpling at point of attachment of pedicle.

TREATMENT

The treatment is essentially surgical, though other methods have been tried and good results recorded. Digestants have no apparent effect on these masses outside the stomach. Massage proved effective in one case reported by Outten, who, citing King, states that a tumor was demonstrated in the stomach of a boy, aged 14 years, who gave a history of having eaten a quantity of persimmons. Massage of the tumor resulted in the natural voiding of a quantity of persimmon seeds and skins after two weeks' treatment. This method is uncertain and even hazardous in cases complicated by gastric ulcer. Through the kindness of Drs. Mills and Simpson of St. Louis, I report a case (Case 8) in which a bezoar was demonstrated roentgenologically. Diluted hydrochloric acid was given because of an achylia gastrica. Within a few days, hard, black masses were evacuated in the stools, which were found to consist of vegetable detritus, apparently prune and raisin skins, with pieces of raisin stems. The conclusion was that the hydrochloric acid resulted in the disintegration of the mass by a stimulating proteolytic action, dissolving the vegetable cement substances. Roentgenograms taken later showed an apparently normal stomach, with no evidence of the bezoar shadow remaining.

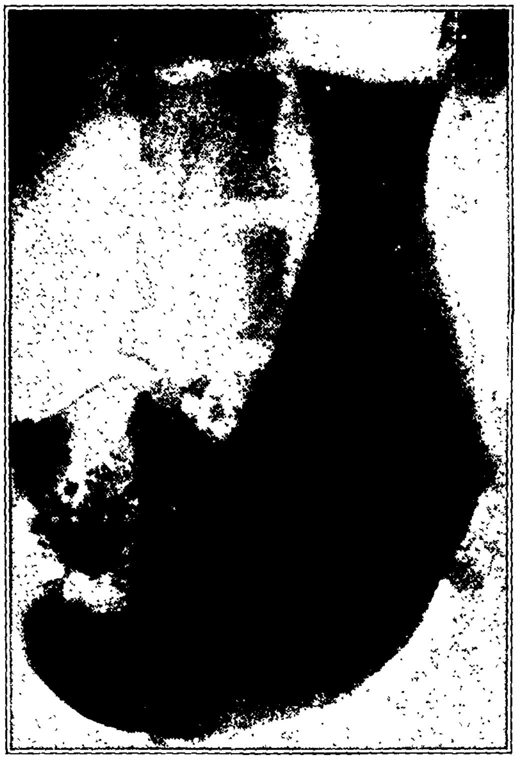


Fig. 4 (Case 8).—Mass near pylorus.

The necessity of a thorough exploration of the stomach at the time of operation may well be emphasized, bearing in mind the possibility of multiple bezoars, and the fact that these bezoars may be found in the extreme cardiac antral region. The incision through the parietes should be large enough to admit the whole hand of the operator.

In the first seven cases, gastrotomy was performed, with one death, from peritonitis five days later, said to be due to the fact that the patient drank the contents of a hot water bottle soon after the operation. In Outten's case, pneumonia developed on the eighth day, death from phthisis following three months later.

REPORT OF CASES

CASE 1.—S. B., a man, aged 54, a teamster, patient of Dr. Don Deal of Springfield, Ill., ate heartily of persimmons, Oct. 10, 1918. Within six hours, vomiting and purging commenced. There was a palpable mass in the left abdominal region. The patient experienced great pain, paroxysmal in character, accompanied by retching, vomiting and purging. A five-hour roentgenogram showed a filling defect in the pars media. A diagnosis of pyloric obstruction was made. Gastrotomy was performed, Feb. 3, 1919. A foreign body said to consist of persimmon seeds and skins was removed. The patient died, February 6, of peritonitis, said to have been caused by his drinking the contents of a hot-water bottle soon after the operation. The duration of the condition was 116 days (nearly four months).

CASE 2.—C. R. B., a man, aged 39, a farmer, patient of Dr. Will Wood of Decatur, Ill., was a heavy drinker. He had had no digestive trouble before. Dec. 5, 1922, he ate about 1½ pints of persimmons and some cranberry sauce. Four hours later he experienced severe pain in the epigastrium, with nausea but no vomiting. The pain continued for three or four days. The vomitus consisted largely of mucus, and was very sour. A diagnosis was made of foreign body in the stomach, probably a persimmon mass, based on the observation of a mass at the roentgenologic examination, and the patient's affirmative answer in regard to the ingestion of persimmons. A gastrotomy was performed, Jan. 12, 1923. A bezoar consisting of persimmon seeds and skins and other food débris, 3 by 2 by 1½ inches, located in the extreme cardiac portion of the stomach, was removed. Recovery was uneventful. The duration was five weeks.

CASE 3.—C. H., a man, aged 38, a farm hand, patient of Dr. Charles L. Patton of Springfield, Ill., on Thanksgiving Day, 1921, ate a regulation dinner of chicken, potatoes, cheese, stewed cranberries, and a large quantity of celery. A day or two after, he began to notice a sensation of fulness in the epigastrium, with dull pain, coming on once or twice a week, usually very soon after meals, but occasionally an hour or two after eating. The pain was usually worse in the afternoon or evening. It was always relieved by alkaline powders. December 1, he felt sick, and did not eat. [illegible] day he felt a dull pain before breakfast, which [illegible] into severe cramping. The pain was in the [illegible]

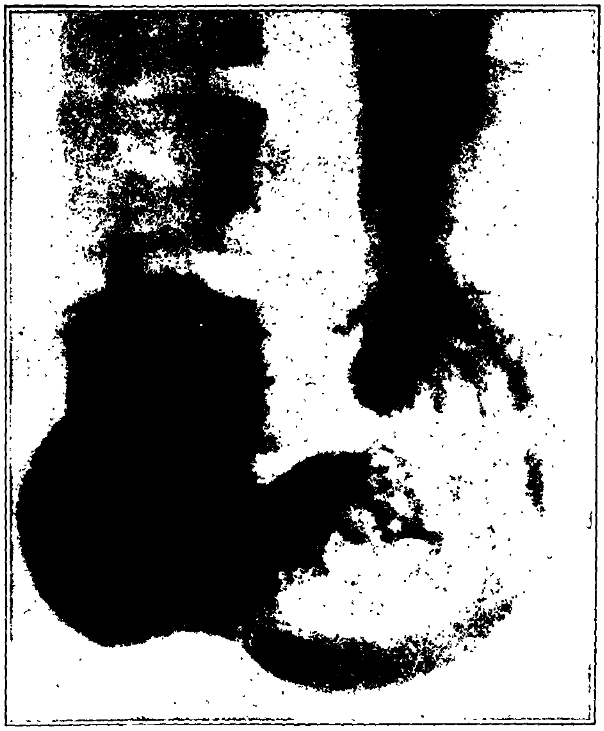


Fig. 5 (Case 8).—Mass in fundus.

tinued for four days despite much calomel and salts. He vomited several times, the vomitus consisting of large amounts of bile-stained material without blood. Morphin finally relieved him. Since then he had had more or less cramping about navel. Any but the lightest liquids increased the epigastric pain and also caused pain in the lower part of the abdomen. Bowel movements and enemas gave only temporary relief. The patient had had no fever that he knew of. An Ewald meal gave: free acid, 92; total, 112. No diagnosis was definitely made. Operation was performed, Feb. 4, 1922. A mass the size of a small hen's egg was found in the small bowel about 6 inches from the ileocecal valve. The bowel was ulcerated, and almost perforated at this point. The bowel was opened, and a foreign body 2 by 1½ by ¾ inches was removed. Further examination revealed a mass in the stomach, which was removed. This mass measured 3 by 2½ by 2 inches, and consisted of some form of vegetable fibers, matted together with mucus and resembling a shredded wheat biscuit. The mass was completely covered with a layer of mucus, bile tinged, and dark green. There has been no cramping since the operation. The duration of the condition was seventy-six days (2 and one-half months).

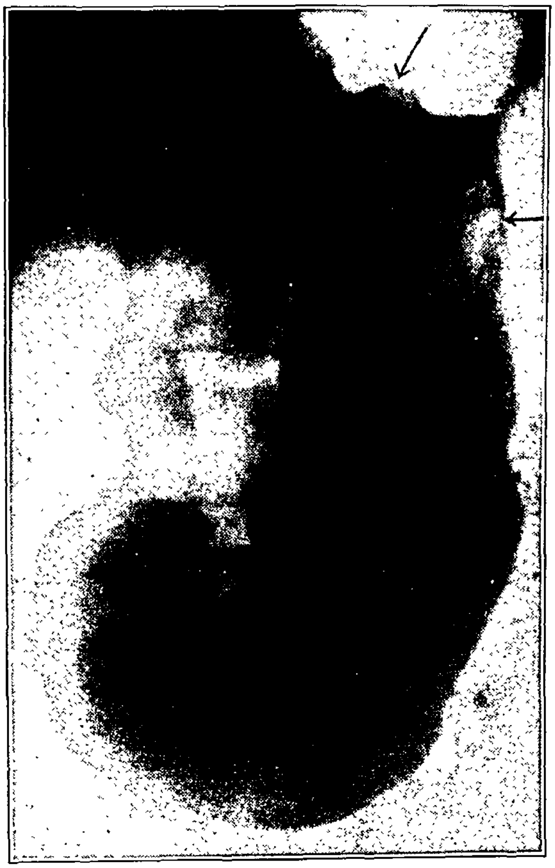


Fig. 6 (Case 8).—Mass near cardia.

Case 4.—Miss A. C., aged 40, a patient of Dr. M. P. Parrish of Decatur, Ill., had occasional attacks of indigestion. She ate a large quantity of persimmons on the evening of Nov. 16, 1921. She had considerable pain soon afterward, and used methods to promote vomiting, which, together with a purgative, relieved her. No preoperative diagnosis was made. A gastrotomy was performed, November 23, and a bezoar was removed, the size and shape of a goose egg, consisting of persimmon seeds and skins. Recovery was uneventful. The duration of the condition was seven days.

Case 5.—N. S. F., a man, aged 53, a brass finisher, patient of Dr. M. P. Parrish of Decatur, Ill., had had no previous stomach trouble. Nov. 8, 1919, while out coon hunting at 1 a. m., he ran across a persimmon tree. While tasting the fruit, he unintentionally swallowed one unripe persimmon. He returned to camp in a half hour, and ate two small apples before retiring. In a short time pain was noticed in the epigastrium, accompanied by nausea and vomiting. He felt as if there was a ball in his stomach which should come out. The vomiting ceased the next day, when a severe diarrhea began, which lasted about two weeks. Constipation then supervened, necessitating laxatives nightly. The pain was frequently felt, always coming on when the stomach was empty, and always being relieved for two or three hours after eating. The stools were always black at this time. The vomitus was always very acid. No preoperative diagnosis was made. Gastrotomy was performed, Jan. 28, 1920. A bezoar the size and shape of a large goose egg, consisting of persimmon seeds (?) and skins was removed. Recovery was uneventful. The patient now has occasional sensations of distress after eating. Acid foods cause no particular distress. Constipation persists. The duration of the condition was eighty-one days.

Case 6.—J. S., a man, aged 35, a farmer, patient of Dr. F. E. Smith of Decatur, Ill., had had stomach trouble for eight years, consisting of severe pain in the epigastric region, with eructations of a very sour material. Acid food always increased and other food always relieved the pain. The patient ate a considerable quantity of persimmons in November, 1921. He was awakened during the night by a very severe pain in the epigastrium, with nausea, and vomiting of mucus. He could feel a lump in his stomach when lying down. He vomited considerable blood one week before operation. Gastric analysis revealed: total acid, 74; occult blood, + + + +. A diagnosis of ulcer of the stomach was made. Roentgen-ray examination showed an ulcer crater on the lesser curvature and a mass in the pars cardiaca the significance of which was not appreciated until the mass was felt and the stomach opened. Gastrotomy revealed a bezoar half the size of a fist, consisting of persimmon seeds and skins and other food débris. The patient recovered. The duration of the condition was nine months.

Case 7.—F. M., a man, aged 53, a hardware merchant, patient of Drs. A. F. Sippy and Carl Davis of Chicago, had had pain in the epigastrium, coming on three or four hours after meals, for many years. Eating always relieved him. Sodium Bicarbonate, 1 dram, also would relieve him, until a year or so before the present trouble; since then it only nauseated him. In November, 1920, he ate a large quantity of persimmons. He had never eaten them before. After eating them he felt "sick all over." Purgatives moved the bowels, but no relief from the pain was obtained. The pain lasted four or five days, and then gradually subsided. He had a number of similar attacks until May 8, 1922, when he entered the Presbyterian Hospital under the care of Dr. A. F. Sippy. Physical examination revealed no palpable mass. Gastric analysis showed hyperacidity. Roentgen-ray examination revealed a gastric ulcer of the lesser curvature. Diet and treatment for four or five weeks produced no material improvement. Malignancy being suspected, the patient was transferred to the service of Dr. Carl Davis, who operated, June 5. An incision was made in the left rectus, and the upper part of the abdomen was explored. The gastric ulcer was resected, and proved to be benign. Gastro-enterostomy was performed in the usual manner. No evidence of a mass in the stomach was noted. Recovery was uneventful. The patient was discharged, June 18, 1922. Feb. 3, 1923, he was seized with a severe pain in the epigastric region. Three hours later the pain, now of very severe character, shifted to the umbilical region. Vomiting supervened. A diagnosis of intestinal obstruction was made by Dr. Carl Davis, and operation was performed, February 5. A large foreign body was removed from the small bowel a few inches distal to the site of the gastro-enterostomy. This mass was cylindric, 3 inches (7.5 cm.) long, and 2 inches (5 cm.) in diameter, consisting of a "yellowish homogeneous material surrounding the mass of persimmon seeds which formed the matrix of the body." The mass had a nodule or shoulder at one point. Recovery was uneventful. Three series of roentgenograms did not reveal the presence of the bezoar. The duration was approximately two years, two and one-half months (819 days).

Case 8.—Mrs. W., a middle-aged, slender woman, highly neurotic and very introspective, patient of Drs. R. Walter Mills and Guy Simpson of St. Louis, was referred complaining of vague, not especially indicative, dyspeptic symptoms. She had herself noticed a very easily palpable epigastric tumor, which was evident on inspection. A test meal revealed achylia gastrica. A roentgen-ray examination indicated a very evident intragastric defect in the pyloric region of the stomach. The impression was that of a benign adenoma, the size of a small fist. On manipulation, it was found that the tumor could be readily dislocated to any portion of the stomach. The idea of a pedunculated tumor was entertained. Dr. Simpson, discovering the achylia gastrica, administered dilute hydrochloric acid, and within the next few days hard masses were evacuated in the stools. These masses were quite black, showed fractured surfaces, and on examination were found to be composed of vegetable detritus, apparently prune and raisin skins, bits of raisin stems, etc. After the recovery of this mass in the excreta, the tumor disappeared from the stomach. It seems possible that the administration of the hydrochloric acid resulted in the disintegration of the tumor, perhaps by a stimulating proteolytic action dissolving vegetable cement substances.

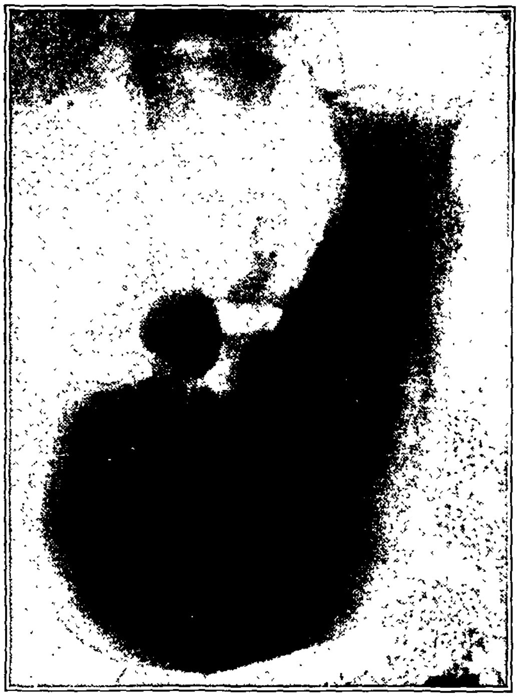


Fig. 7 (Case 8).—Normal stomach after disintegration and evacuation of mass.

ABSTRACT OF DISCUSSION

Dr. F. A. Kinslow, San Francisco: It is interesting to speculate just why these masses should form, and the association with hyperacidity in nearly all of the cases, and with ulcer in some cases, seems to have some significance. In most cases gastritis was present. The symptoms came on very soon after the mass had been ingested. Also, the mass seems to have been formed soon after it was ingested, as the outside seemed to be covered with persimmon skins, which would not have been the case if it had been added to. In the coconut fiber mass and the celery mass, the mode of formation must be different from the formation of the persimmon mass. Probably their mode of formation was similar to the hair-ball formation. I think they were added to. It seems significant that more of these cases are not seen. Dr. Hart picked up his cases away above the persimmon belt, and there would seem to be more of these cases that are either not recognized, or the symptoms are of such a trivial nature that the patients carry the masses around for years and never consult a physician.

Dr. Sidney K. Simon, New Orleans: I have not encountered, knowingly, any bezoars. But, if Dr. Hart, living in an Illinois community, where fruit ingestion is not unusually high, encountered so many cases, I believe that it will be found that the presence of these food masses, or bezoars, is a great deal more common than we have had reason to believe from the present statistical information. The point that is stressed particularly is the fact that these cases may simulate carcinoma of the stomach, both from the clinical side and from the radiologic side. It is very possible that some of the so-called inoperable carcinomas of the stomach are allowed to drift, and possibly some of those that turn up as miraculous cures without operation are, in fact, cases of food collections in the stomach belonging to the bezoar class.

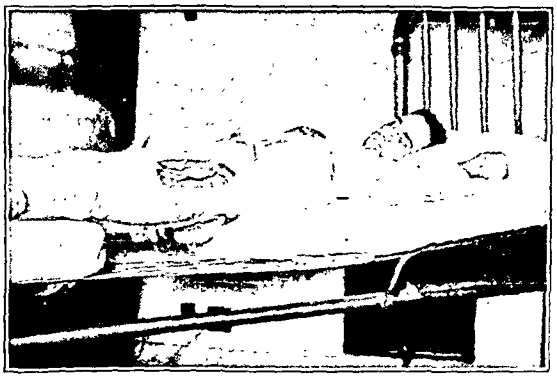
Dr. W. E. Hart, Decatur, Ill.: I did not touch on the differential diagnosis. Hair-ball occurs in females, only one case in a male being reported. This man had a long beard which he was in the habit of chewing. Hair-balls may crepitate, and form slowly, with no history of an acute gastroenteritis, as in phytobezoars. There is usually no marked disturbance in nutrition in phytobezoars, but there may be in a hair-ball, as the mass is augmented by the continued process of hair swallowing. A history of the ingestion of persimmons is significant. In carcinoma, loss of weight is the rule; the tumor is usually painful to pressure; the filling defect or shadow is constant in location, and cannot be moved from one end of the stomach to the other, as in bezoars. The gastric analysis is very likely to show hyperacidity in the various types of bezoars, as in the three of the seven cases reported. In other tumors, such as fibroma, engioma and papilloma, the filling defect or shadow is constant, and cannot be changed materially.

Clinical Notes, Suggestions, and New Instruments

SUBSTITUTE FOR FRACTURE BED IN CASES OF FRACTURE WITH LARGE CASTS

R. C. Webb, A.B., M.D., Minneapolis

When a patient is placed in a large cast, such as a double spica, there are certain difficulties which occur in the nursing, and various frames and special types of beds have been devised to aid in the care of the patient. A recent case occurring in my practice was that of an electrical engineer with a *subtrochanteric fracture of the femur. A Lane plate* was applied and *the patient* placed in a double spica cast extending from the nipples to the toes on the [illegible] involved, and to the knee on th[illegible]. He was [illegible] a "fracture bed" w[illegible]



Patient lying in hospital bed on special mattress with middle section removed.

the frame on which he lay. The bars of the frame were not wide enough; it caused him some discomfort, and additional nurses were required to manipulate the apparatus. This, with the mechanical inconsistencies from an engineering standpoint, added to the nervous strain and resulted in a search for a satisfactory substitute.

The special frame and bed were discarded, and a sectional mattress the width of the bed and in three sections was secured and placed on rather wide slats across the spring. The section at the head of the bed measured 36 inches, the middle section 15 inches, and the section at the foot 24 inches, thus giving a mattress of the usual length and width for hospital beds. A piece of "compo" board 15 inches wide and as long as the width of the bed was fastened to the under surface of the middle section, and handles were sewed to each end, making it easy to grasp and slip back and forth under the patient, who in the meantime raises himself slightly with his elbows and is supported by the upper and lower sections. Thus, one nurse can easily insert a bedpan by merely withdrawing the middle section. The mattress can be turned one section at a time, and by covering each section with separate sheeting the bed can be made with ease. By drawing the lower section to one side, a wider range of motion is afforded the free knee.

This type of mattress is comparatively inexpensive, and has the additional advantage of being useful on any bed when not in use for special cases. It obviates the usual method of calling in the "whole force" when such a patient has to be moved, and avoids the usual risk to the affected part.

300 La Salle Building.

PERINEAL HERNIA *

Joseph D. Heiman, B.S., M.D., Cincinnati

Hernias are of frequent occurrence and the subject is a large one about which much has been written, but there are few cases of perineal hernias on record. In 1918, Moschcowitz[1] pointed out that, owing to the number of defects made in the fascia of the pelvic outlet by the urethra, vagina, rectum and blood vessels, perineal hernias might be expected to be common. In spite of this, going back in the literature as far as the eighteenth century, he could find only twenty-eight typical cases. The case here reported is of such a nature. It is also interesting from the standpoint of operative interference for the relief of prolapse of the uterus.

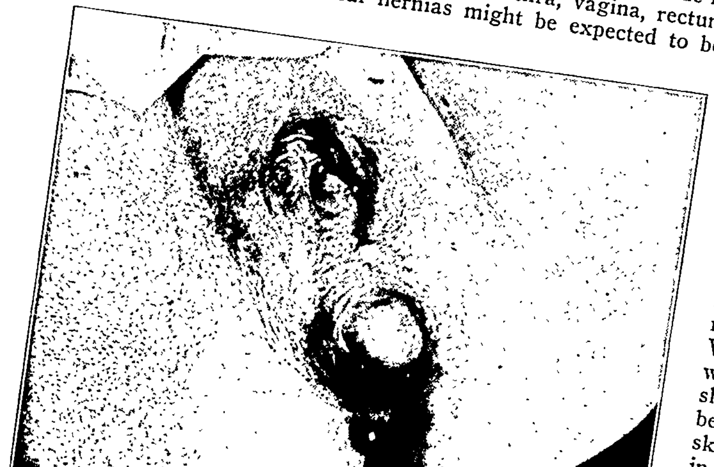


Fig. 1.—Appearance of hernia when patient strained.

REPORT OF CASE

History.—I. Y., aged 47, entered the gynecologic service of the Cincinnati General Hospital, Jan. 23, 1923, complaining of a rupture between the vagina and the rectum. She had been the subject of numerous operations, seven in all, only two of which had no direct bearing on her present illness. As a young girl she was compelled to work very hard and developed a prolapse. Her first operation, in January, 1899, was for the relief of this, by the vagina, without success. During the next two months she had two laparotomies for the same condition before it was improved. She was in bed three months after the last operation. In 1911, both tubes, ovaries and uterus were removed for the recurrence of prolapse. She then developed a bulging and protrusion of the vaginal walls, so that in 1912 the vagina was completely closed. The next two operations, in 1921 and 1922, were for umbilical and ventral hernias.

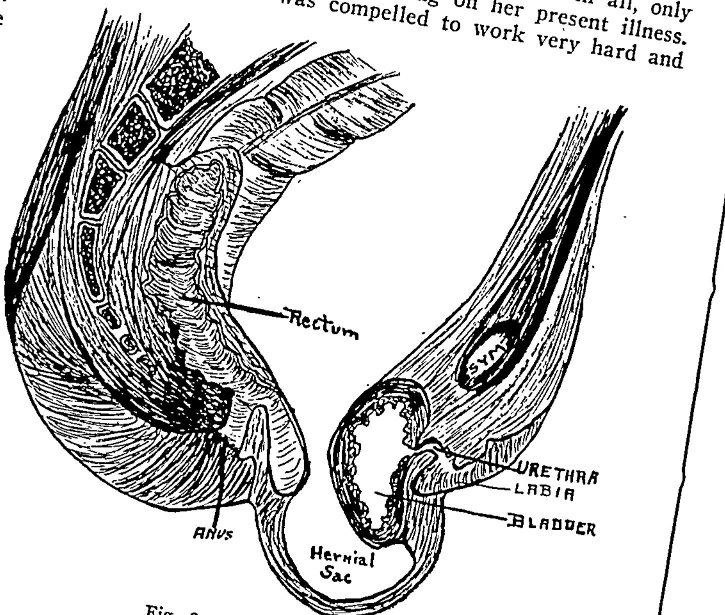


Fig. 2.—Relation of parts.

Aside from this, the history was negative. Menstruation had been normal. The patient had been married and had one child after the development of the prolapse.

Within about three weeks after closure of the vagina, she began to notice a bulging in front of the rectum which gradually increased in size, and became painful and larger on sneezing, coughing, straining and the like.

Examination.—The patient was well developed; the heart, lungs and abdomen were normal. Some bleeding which she reported in the stools was probably due to hemorrhoids. The Wassermann reaction was negative. Vaginal examination was impossible because all that remained of the vagina was a short, blind pouch. Rectal examination showed the pelvis to be empty. The perineal body was composed of nothing but skin, the center of which lay in wrinkles and was very loose in the recumbent position. By rectum this could be bulged out with the finger. When the patient coughed, a mass the size of a lemon protruded in the midline between the vagina and the rectum.

Operation and Result.—The patient was operated on, January 26, by Dr. Sigmar Stark. Tenaculum forceps were placed at the posterior end of each labium minus, and a third in the median line posterior to the hernial protrusion; the skin between was dissected back, disclosing a hernial sac. The bladder, attached low to the peritoneum of the culdesac which formed the hernial sac (Fig. 2), was separated by blunt dissection and brought to a higher elevation. The hernial sac was excised as high as possible, and in closure by transverse suture, complete obliteration of the culdesac was effected. The rectum was likewise freed from the hernial sac subsequently, and turned in behind the new perineum. The levator ani muscles with deep fascia on both sides were brought together in the midline, beginning in front of the rectum [illegible] No. 2 [illegible] mishaps.

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* From the Gynecological Service of the Cincinnati General Hospital.

[1] Moschcowitz, A. V.: Surg., Gynec. & Obst. **28**: 514 (May) 1918.

Recovery [illegible] ficial slo[illegible] in Figure [illegible] March 1, [illegible] no bulging.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

pulsating tumor above the right clavicle. The heart was regular.

Although the abdomen was well padded with fat, the lower edge of the liver was easily palpable three fingerbreadths below the costal border, and it was somewhat painful on pressure. The spleen was not palpable. There was a large right inguinal hernia. The lower limbs were devoid of edema. The knee jerks were absent, but the Babinski reflex was present to a slight degree on both sides. The blood pressure was 150 systolic, 0 diastolic. The urine was highly colored, and contained a small amount of albumin and a number of large, granular casts.

The patient was admitted to the University Hospital the same day. The temperature was normal; pulse, 102; respirations 28. The case was considered one of aortic aneurysm with increased mediastinal pressure and decompensation; accordingly, digitalis and morphin were administered. When I described the case to my senior, Dr. LeRoy Crummer, next day, he referred me to the case reports of rupture into the superior vena cava and, on reading the reports, one could not help but see the almost exact similarity of all these cases.

The electrocardiogram showed no apparent deviation from normal. The Wassermann reaction was four plus. The urinary output was 10 ounces during the first twenty-four hours. The roentgen-ray examination verified the large aneurysmal dilatation of the aorta with mediastinal pressure, but, because of the serious condition of the patient, he could not be kept long enough for fluoroscopic examination.

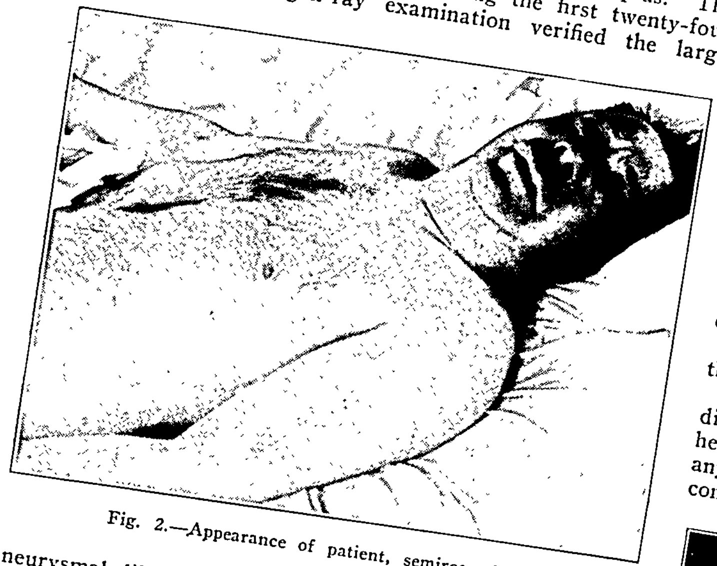

Fig. 2.—Appearance of patient, semirecumbent.

His condition remained about the same, except that the attacks of dyspnea seemed to be getting a little more frequent, restlessness was more extreme, and increasing quantities of morphin were required for relief. On the fifth day the attacks of dyspnea were succeeded by short spells of irregular breathing, until he passed into coma, and death followed ten days after the rupture had apparently taken place.

A necropsy was not allowed, but permission was given to open the chest and examine the heart in situ. The depth of the structures rendered photography impossible; accordingly, a drawing (Fig. 1) was made. There was a considerable amount of clear fluid in both pleural cavities; this had probably accumulated since entrance to the hospital and since the roentgen-ray examination. The pericardium was adherent but easily separated, leaving a rough bread and butter appearance. There was no fluid. The aorta was enlarged to the size of a grapefruit, and the wall was thinned out so that it had the appearance of the auricle. When this was opened, as shown in the drawing, and the clots removed, there was found an irregular opening that would easily admit a lead pencil into the superior vena cava. The cava itself was much dilated upward, and projected to the pulsating mass above the clavicle. The heart itself was not opened or removed.

801 City National Bank Building.

A NEW ADJUSTABLE NASAL CLAMP

FOR IMMOBILIZATION OF FRACTURES OF THE NOSE, AND FOR POSTOPERATIVE CORRECTION OF EXTERNAL NASAL DEFORMITIES *

Luis P. Berne, M.D., New York

Immobilization is just as important for the ultimate success following operation for the correction of bony deformity of the nose, as it is in fracture of the long bones.

Fixation of the bony parts of the nose in proper alinement, or the application of either pressure or compression, is indispensable. This applies to the postoperative treatment of traumatic fractures, and also following operations for the correction of external deformities when medial alinement or diminished width of the base is necessary.

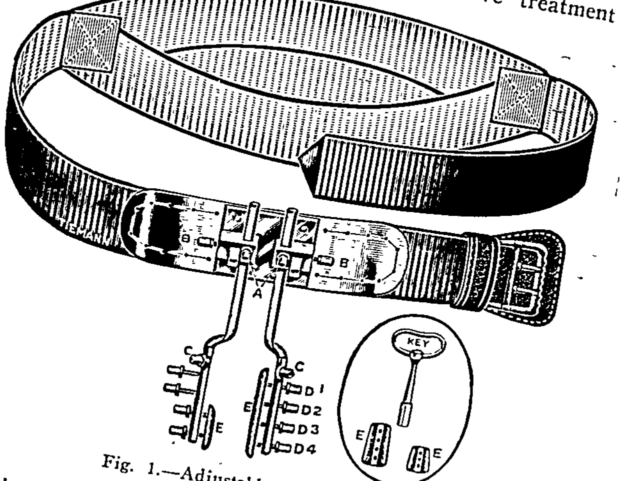

Fig. 1.—Adjustable nasal clamp.

The support here illustrated has been devised to meet all these requirements. It is adjustable to any nose.

Adjustment in an up and down, and an anteroposterior, direction is obtained by the screws *A* and *B* (Fig. 1) of the head band. Rotation of the lower half (nasal portion) into any position is accomplished by means of two rods which are controlled by the screws *C C*.

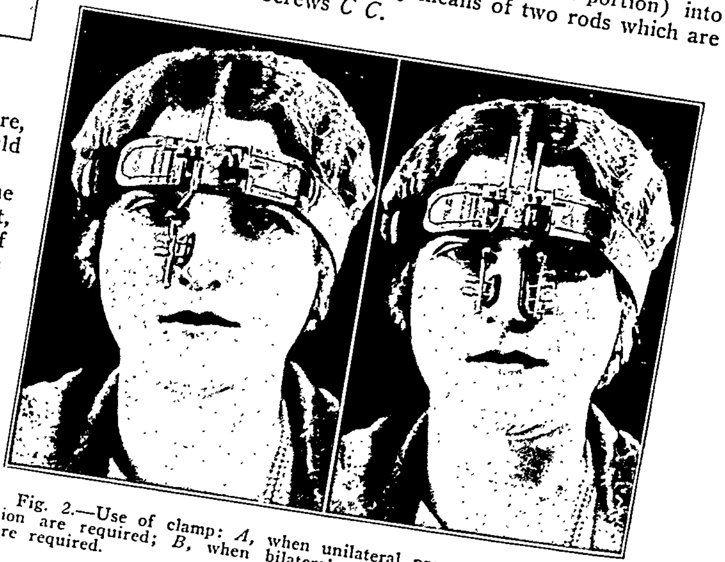

Fig. 2.—Use of clamp: *A*, when unilateral pressure and immobilization are required; *B*, when bilateral compression and immobilization are required.

Uniform pressure and compression in addition to immobilization are obtained by tightening the four screws *D* 1, 2, 3 and 4, of the nasal rods, when they are fitted into the cups of the respective plates *E*. The padded plates are obtainable in four sizes: 1, 2, 3 and 4.

353 West Eighty-Fifth Street.

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* Instrument demonstrated before the New York Academy of Medicine, Feb. 28, 1923, the King's County Medical Society, March 22, 1923, and the Seventy-Fourth annual session of the American Medical Association, San Francisco, June, 1923.

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SATURDAY, DECEMBER 1, 1923

PROBLEMS OF LIFE IN THE TROPICS.

The various physiologic problems concerned with life in the tropics have assumed an increasing importance in recent years. The penetration of civilized man into "the remotest corners of the earth" has brought persons, adapted through generation after generation to the climatic peculiarities of the temperate zones, into new conditions of environment. The white races are being transported, through the exigencies of commerce and colonial expansion, into domains inhabited almost exclusively by the black-skinned races. The question of the ability of the newcomer to withstand the new environment is one of no small moment in the readjustments of population and the evolution in industrial expansion that are going on. The indigenous races are likewise concerned, in that for them, too, new social and economic conditions are certain to alter the traditional habits and modes of living.

The need of information about the situations thus being created has been appreciated more deeply in this country ever since our occupation of the Philippines. Some of the European governments have faced the paucity of dependable information in an official way much longer. Yet the last quarter century, which has witnessed so many important discoveries in science, cannot be said to have advanced our understanding of physiology in the tropics greatly, although it has improved the sanitary conditions in tropical and semitropical zones, and enriched our knowledge of tropical medicine. Indeed, it almost seems as if the mastery of disease in the tropics has been more successful than the mastery of normal living in these regions.

There are, however, some positive contributions. As Breinl has pointed out, for life in the tropics the physiologic response of the warm blooded animal organism to the increased external temperature is of the greatest practical interest and importance. Under normal conditions, the temperature equilibrium is maintained by heat production and heat loss; the former is brought about by chemical means—by the combustion of food material in the body; the latter, by physical means—by radiation and convection and by evaporation of sweat. Radiation and convections, however, exercise a comparatively unimportant part in the heat-regulating mechanism of the clothed human being in the tropics, where the outer temperature is high and frequently approaches that of the body; under these conditions the human organism relies for its cooling mainly on the heat loss due to the evaporation of sweat. Humidity is a factor interfering more or less with the latter process; and there are regions of tropical heat in which the atmospheric moisture as well as the temperature is exceptionally high. For such places, in particular, the problem of the tolerance of personal discomfort, particularly when work increases the heat production of the body under conditions of imposed loss, has been much debated. Haldane's[1] studies have indicated that the temperature of the human organism exposed to humid heat begins to rise after a period varying according to the individual and the conditions, and then continues to do so. The rise in body temperature corresponds with the reading of the wet bulb temperature, and is virtually independent of the dry bulb temperature. During rest in still air, wet bulb temperature of about 31.1 C. (88 F.) could be borne without any abnormal rise in rectal temperature; but when the thermometer rose above that temperature, the rectal temperature immediately began to rise, being accompanied by an increase in the pulse rate, profuse sweating and dyspnea, until finally exhaustion set in. During muscular exercise in still air, this increase in body temperature began at a lower wet bulb reading (27 C., or 80.6 F.), while in moving air much higher wet bulb temperatures were required to produce the same effect. Breinl's[2] observations, carried out on a large scale on laborers in North Queensland, Australia, under supposedly severe conditions of humid heat, are in harmony with laboratory studies in showing remarkably good powers of adjustment. Even when the wet bulb themometer reached 30 C. (86 F.), the averages for rectal temperatures were only between 37.7 and 38.3 C. (99.9 and 100.9 F.), with a maximum of 38.8 C. (101.8 F.) and a minimum of 37.5 C. (99.5 F.). The heat regulating mechanism of the laborer was not severely affected, and he was still able to maintain a temperature equilibrium, although at a somewhat higher level.

The extreme views broadcast by certain writers about the severe effects of sunlight in the tropics have also proved to be untenable. The greater intensity of the rays is due solely to the less oblique path of the rays striking the earth, whereby they have passed through a smaller layer of atmosphere. As a result, a lower degree of absorption and scattering has taken place, and the chemical and physical activities of these rays are therefore greater, the nearer to the equator. This greater activity of the sun's rays manifests itself in every-day life; but as yet there are no really cogent reasons for believing that any ill effects of the tropical sun are due to light rather than heat, however interesting the speculations about direct insolation may be. The truth is that we are still largely ignorant of the fundamental facts on which to base final judgments. Heat regulation, basal metabolism, and circulatory and hematopoietic functions appear to remain unimpaired under suitable conditions of living. Even the alleged neurasthenia of tropical residents may be somewhat of a myth. What is needed today is more fundamental investigation, the sifting of fact from fancy, in order to ascertain whether, in truth, tropical regions militate against successful invasion by persons who have been adjusted to other environments.

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[1] Haldane, J. S.: J. Hyg. 5: 494, 1905.

[2] Breinl, A.: An Inquiry into the Effect of High Wet Bulb Temperatures upon the Pulse Rate, Rectal Temperature, Skin-Shirt Temperature and Blood Pressure of Wharf Labourers in North Queensland, M. J. Australia, April 16, 1921.

THE DISCOVERER OF THE BABCOCK TEST FOR MILK FAT

Sherman has reminded us that "milk is the one article of diet whose sole function in nature is to serve as food." Its importance accordingly assumes enormous proportions. The milk consumed as such in the United States is estimated to approximate one third quart (liter) per person daily, in addition to which a much larger quantity is used for the manufacture of cheese and butter that also enter the dietary of man. To those who are impressed more forcibly by a dollars-and-cents evaluation of the subject, it may be interesting to learn that the milk industry involves the equivalent of more than half a billion dollars annually. Of course, the importance of this business to our population is far greater than its money value can indicate. No other food is more vital to national health and efficiency. It takes a preeminent place in the nourishment of the young, and it furnishes an incomparable source of nutriment in the dietary of the sick and the convalescent.

A product of this sort must obviously be safeguarded against dangerous contamination; hence the institution of systems of efficient inspection and other precautions designed to insure milk sanitation and a safe milk supply. But, obviously, milk has offered a ready opportunity for adulterations that reduce or impair its nutritive value rather than render it likely to transmit infection. Since the milk fat or cream element is the most valuable component of the fluid, it has been singularly liable to dilution or removal; while, furthermore, the energy value of the milk varies largely with its comparative richness in the fats. Between skimmed milk and the richest Jersey or Guernsey milk there is a wide latitude of fat content; and the determination of the latter is often particularly desirable in modifying a diet into which milk enters largely.

Thanks to an invention of an American chemist, Prof. S. M. Babcock of the University of Wisconsin, a rapid, simple method for the accurate estimation of the fats in milk was made available in 1890. The announcement spread rapidly throughout the entire dairy world, and apparatus for the familiar "Babcock test" for milk was introduced not only into chemical laboratories but sooner or later into every creamery in the smallest hamlet. The importance of the Babcock test to every institution or individual concerned with milk can scarcely be exaggerated. It was enhanced by the fact that the scientist gave his invention freely for public use without exercising the lucrative rights that a patent would have secured for him. March 27, 1901, a medal was given to Dr. Babcock by the state of Wisconsin, bearing the inscription, "In recognition of the great value to the people of this state and to the whole world of the invention and discoveries of Prof. Stephen Moulton Babcock of the University of Wisconsin and his unselfish dedication of these inventions to the public service, the state of Wisconsin presents to Professor Babcock this medal." The medical profession joins in the felicitations that are being extended to Professor Babcock at this season in celebration of his eightieth birthday anniversary.

THE RELATIVE VALUES OF FATS

Most of our readers will recall the expression, "Fat is fuel for the fighters," a slogan made familiar throughout this country by the billboard appeals of war time. Before 1914, the use of fats in this country was probably more generous than that of any other country. Whereas the American ordinarily consumed 3½ ounces a day, the Englishman used 3⅛, the German 2⅓, and the Frenchman 1½ ounces. Following the progress of international hostilities, these figures changed greatly for the European countries. The fats obtained from domestic animals (butter, lard, suet and tallow, for example) were produced in much smaller amounts than usual, on account of lack of food for the stock obtainable from abroad. The vegetable fats and oils are made chiefly from the seeds of plants growing in warm countries (olive, cottonseed, peanut), and these could not be imported as usual for lack of ships. To make the situation worse, fats were needed not only for food but also for making glycerol and other compounds used for munitions and for various other industrial purposes, including the manufacture of soap.

From the standpoint of governmental needs, the situation as regards the fat supply in 1917-1918 made necessary both an actual cutting down of consumption and a substitution of one kind of fat for another—the vegetable oils for the animal fats. This was not difficult, for the possible substitutes were numerous and fairly familiar. Aside from butter substitutes such as oleomargarin and nut or vegetable margarins made from coconut, cottonseed and peanut oils, lard substitutes represented by mixtures of vegetable oils with harder animal fats and hydrogenated oils—fats made solid by passing hydrogen through them under proper conditions—came into legitimate prominence, though they had been available long before.

It was quite natural that pronounced changes in the dietary habits and traditions of a country should awaken some misgivings as to both the desirability and the physiologic wisdom of the substitutions. The urge of patriotic sacrifices in the direction of saving fats is no longer with us, so that inquiry as to the nutritive values of some of the newer products is pertinent. That the subject is one of interest to the medical profession is attested through inquiries received by The Journal regarding the relative digestibility and utilization of animal and vegetable fats in particular. The government laboratories have anticipated the demand for information by investigations of at least fifty more or less common fats and oils.[1] The outcome seems to indicate that the digestibility coefficient of the fats having melting points above body temperature (37 C., or 98.4 F.) varies inversely with the melting point. It has also been found that most of the common oils are utilized from 93 to 98 per cent. by the human body. Nevertheless, some oils were found to cause digestive disturbances, and some oils are less tolerated by the body than others. Therefore, before we can say whether or not an oil or a fat is suitable for use in the human dietary, we must know not only its coefficient of digestibility but also its effect on the human body when eaten in quantities at least equal to those in which butter or other common fat is used in the average dietary.

The true fats, that is, the glycerids of fatty acids, are primarily sources of energy for the organism, and from this standpoint they have approximately equal value, their availability being determined essentially by texture and consequent ease of digestion. The factors that determine a choice include relative cost, suitability for special culinary uses, palatability and traditional preferences. A large number of investigations indicate that the digestibility of the other ingredients of the ration is not essentially altered by the character of the fat included with them. By careful regulation of the processes used, it is possible to "harden" oils by hydrogenation so that the products have any desired melting point. The result of studies in various American laboratories[2] lead to the conclusion that these hardened oils are utilized as well as natural fats of corresponding melting points. Of course, there are pathologic conditions, particularly those involving the failure of biliary and pancreatic secretions, which place limitations on the digestibility and absorption of any sort of fat.

More important than these features of digestibility is the fact that naturally occurring fats may be "carriers" of nutritive values or potencies not expressed in terms of energy. They may contain more or less fat-soluble vitamin A and antirachitic substance. These cannot be neglected. They are present far more richly in fats of animal origin than in those from vegetable sources. Green vegetables also contain vitamin A, so that the dietary is not dependent solely on animal fats for a supply. The vitamin content has come into prominence as an important consideration in all questions of nutrition. The dietitian, however, should distinguish clearly between fats as adequate sources of energy and fats as carriers of vitamins. The two features need not be identified in a single item, nor does the absence of one necessarily vitiate the value of the other. The wholesomeness of a fat is not determined primarily by its vitamin content, though the choice of fats for individual uses may be guided at times by such a consideration.

After all, one should recall that fats and oils are much alike in chemical composition and properties. The kinds that different nations have eaten have depended chiefly on climatic and economic conditions. Thus, olive and coconut oil are used in tropical and semitropical countries; lard and butter, in meat producing countries. In recent years, with the development of industries and transportation, the variety, especially of the vegetable products, has been largely extended.

The fact that some fats are solid and some oily does not affect their comparative wholesomeness, but it does make a practical difference in the way we use them. Sicilian peasants may enjoy eating olive oil with their bread, but most Americans prefer a stiffer "spread." The conclusions issued by the U. S. Food Administration during the war remain cogent today: Except for the vitamin present, there is no difference in the food value of different kinds of fat. All yield equal amounts of energy, and are digested with virtually the same ease and completeness. Scorched fats, such as are found in foods that have been fried at too high a temperature, sometimes prove troublesome and have given fried foods the reputation of being indigestible; but this is probably due to the poor cooking rather than to the fat itself. Although fats do not usually cause any digestive disturbances, they do remain in the stomach longer than the other nutrients, and this seems to have a most interesting effect on the sensation of hunger. That sensation begins to be felt after the stomach has been empty for a time. If there is little or no fat in the meal, the sensation begins more quickly, and this probably explains why a diet poor in fat seems so unsatisfying and why one rich in fat seems "hearty." Fat in the diet has a marked "psychologic" value. Food without fat is likely to be without flavor and monotonous. If a food is distinctly unpleasant and different from that to which a person is accustomed, actual digestive upset may result. However, all the more recent investigations indicate that the margin between the amount and kinds of fat we may desire and that which we actually need is wide beyond expectation.

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[1] Langworthy, C. F., and Holmes, A. D.: Bull. 310, 1915; Bull. 505, 1917; Bull. 507, 1917, U. S. Agric. Dept. Holmes, A. D.: Bull. 613, 1919; Bull. 630, 1918; Bull. 687, 1918; Bull. 781, 1919, U. S. Agric. Dept.

[2] Holmes, A. D., and Deuel, H. J., Jr.: Digestibility of Some Hydrogenated Oils, Am. J. Physiol. 54:479 (Jan.) 1921.

Current Comment

EXERCISE AND THE CIRCULATION

One of the immediate effects of muscular exercise is the acceleration of the heart beat. Even with a comparatively slight performance, the pulse rate of an adult may rise to 100 a minute; when the work done is heavier, the figure may exceed 150. Under such conditions it is evident that profound changes must be produced in the circulation, indirectly influencing all the tissues of the organism. It is commonly believed that the capabilities of the circulation form the foremost limiting factor in the ability of the organism to engage in strenuous muscular performance. As the working structures demand an uninterrupted supply of the indispensable oxygen, which can reach them only through the blood stream, it becomes apparent that the circulation must have a significant part in maintaining an adequate available quota. Recent experiments by Himwich and Barr[1] leave little doubt that, contrary to what one might expect in times of demand, not only the oxygen capacity but also the oxygen content of the blood is usually augmented during and after short periods of vigorous work. Consequently, no part of the hyperpnea attending ordinary exertion can be attributed to an anoxemia—a lack of oxygen in the arterial blood—although after severe and exhausting exercise such a factor may come into play. The mobilization of red corpuscles with their oxygen-carrying hemoglobin, the stretching of the alveolar membranes through the more vigorous breathing, and the consequent better diffusion into the lung, all contribute to enable the blood to retain more oxygen. Indeed, the investigations of Himwich and Barr lead them to the unanticipated conclusion that perhaps the severity of the exercise that a normal person will tolerate may be determined by the amount of oxygen that can diffuse through the lung membrane rather than by the capabilities of the circulation.

BACTERIOLOGIC DIAGNOSIS OF CHANCROIDAL INFECTION

While our knowledge concerning venereal diseases in general has grown rapidly in recent years, we lack a ready and reliable means for making a bacteriologic diagnosis in chancroidal infections. The causative agent in chancroidal infections is the bacillus of Unna-Ducrey, which can be demonstrated in ordinary smear preparations by means of the Gram stain, the organism retaining the counterstain. Chancroidal infection, however, is often mixed with syphilitic infection, and in such cases differential diagnosis of the two infections may be difficult, if not impossible, unless a complete examination of smear and dark-field preparations is made. Haxthausen[2] states that of cases diagnosed as chancroidal infection, and treated by specialists as such, eighteen in three hundred presented symptoms of syphilis later. While it is nearly thirty years since Unna and Ducrey described the bacillus of chancroid, no practical method of cultivating the organism that may be used in diagnosis has been introduced. Recently, Teague and Deibert[3] described what seems a simple means of growing the organism in culture for diagnosis, by inoculating pus directly from the chancroid into tubes of sterile clotted rabbit blood heated to 55 C. for five minutes. After incubation for twenty-four hours, smears from the exuded serum may show characteristic chains of gram-negative streptobacilli, associated frequently with gram-positive organisms. Teague and Deibert obtained positive cultures of the bacillus of Unna-Ducrey in 50 per cent. of all venereal ulcers examined, most of the negative cultures being obtained in cases clearly not chancroidal in character. They conclude that a cultural diagnosis of chancroid may be obtained in a large proportion of cases, probably about 90 per cent. In order to perpetuate cultures obtained in the way described, Teague and Deibert transplanted the colonies into clotted rabbit blood heated at 55 C. for fifteen minutes, incubating for twenty-four hours and then preserving the culture in the refrigerator. Such cultures may remain alive at least three and sometimes four or more weeks. They studied a large number of pure cultures with special reference to serologic classification, but apparently without obtaining any indication that the bacillus falls into definite groupings. The method described by Teague and Deibert seems to be a relatively simple procedure, but it probably will require a great deal of further investigation in the hands of competent observers before its real practical value may be definitely established. If it should prove successful, it will mean a real advance in the diagnosis of chancroidal infection.

CLINICAL INVESTIGATION ON PRIVATE PATIENTS

> The cases whose metabolism is here recorded have been private patients of the writer. . . . The experiments were performed *with* the patients rather than *upon* them. . . . The investigators and the patients considered themselves united in a partnership, having for its object the accumulation of knowledge for the benefit of all diabetics rather than for the given individual under investigation in particular. . . . These statements . . . demonstrate, first, that private patients are especially desirable subjects for scientific investigation; and, secondly, cooperation and an intelligent understanding of what is the purport of an experiment considerably lessen the labor of supervision and are of the greatest assistance in preventing errors, whether wilful or unintentional.

This paragraph, from the introduction to Joslin's[4] new volume on diabetic metabolism, calls attention to a partnership which has thrown much light on hitherto dark problems of diabetes. To perform the experiments requires intelligence and cooperation. Joslin secured the cooperation of his intelligent patients, and as a result all diabetic patients will receive the benefit of the investigations. Other workers in clinical medicine have used similar methods. Much of Mackenzie's work on heart disease was done in private practice; the history of gout is filled with studies of the disease often made by the observer on himself. Sydenham, Harvey and Hunter contributed valuable observations on the disease as it affected themselves. Yet Joslin's study is probably the first that stresses the importance of working with the more intelligent private patient in laboratory experiments. Frequently, much fear has been felt that intensive investigation of a disease was not good for the welfare of the more highly strung private patient. As a result, small hospitals with no community (charity) service have not felt the urge of advancing medical science, and large hospitals have too often used only their ward services for investigation purposes. Physicians, in practice, experiment every time they give a dose of a drug or, in fact, therapy of any kind, for patients differ in their reactions to substances that may be administered. How much better to recognize this factor and then to carry the thought to its logical conclusion. Every patient requires study; study is synonymous with the desire for truth, and truth is the basis of any possible development. Private patients may be allowed to appreciate these facts, and when they do, are usually eager to participate in the honor and the glory of the work.

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[1] Himwich, H. E., and Barr, D. P.: Studies in the Physiology of Muscular Exercise, V, Oxygen Relationships in the Arterial Blood, J. Biol. Chem. **57**: 363 (Sept.) 1923.

[2] Haxthausen: Hospitalstid. **66**: 489 (July 11) 1923.

[3] Teague, O., and Deibert, O.: J. M. Res. **43**: 61 (Jan.-March) 1922; J. Urol. **4**: 543, 1922.

[4] Joslin, E. P.: Diabetic Metabolism with High Diet Carnegie Institution of Washington, 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

University News.—Governor McRae in a speech at a banquet of the students and faculty of the University of Arkansas Medical Department, Little Rock, November 12, promised new buildings for the medical school as part of his general tax program for the relief of all public schools in the state. The enrolment has practically doubled during the last year and lack of room for further expansion makes new buildings necessary. Extra hospital facilities are part of the program. Steps were taken at this meeting toward the erection of a memorial to the physicians of Arkansas who lost their lives during the World War.

CONNECTICUT

Connecticut's Part in the Diploma-Mill Scandal.—According to the reports, a special grand jury has been created in Connecticut for the further investigation of the serious part which Connecticut has had in the recently exposed diploma-mill activities. According to the news comments these activities appear to center in the Connecticut Eclectic Examining Board. Reports state also that the Eclectic Board has attempted to transfer a part of the blame on the Connecticut state health department. In reply, Dr. Stanley H. Osborn, state health commissioner, stated that "the law makes it obligatory on the part of the health department to issue licenses to all who have been passed by the (three separate) examining boards." He explained that the "capacity of the state department of health with relation to the eclectic examining board was little more than that of a clerk." "In order to revoke the licenses of any eclectic physicians," Dr. Osborn said, "written requests to that effect must be received from every member of the eclectic examining board." He stated also that Section 2857 of the General Statutes required that "every applicant for (medical) examination shall be examined by the committee representing the same school of practice in which the applicant was graduated." Dr. Osborn showed that Connecticut Eclectic Examining Board had not limited itself to graduates of eclectic colleges as prescribed by law, but accepted for examination almost any medical graduate who presented himself.

Laxity and carelessness in the issuing of medical licenses on the part of the Eclectic Board as referred to in the news reports, is illustrated by the following letter, a photographic copy of which was reproduced in several newspapers. This letter is alleged to have been written by Dr. Frank Webb of Bridgeport, Conn., and *is said to be an important part of the* evidence in the investigation.

Frank Webb, M.D.
1670 Iraniston Ave.
Phone Barnum 1205

H. G. Heller, M.D. Bridgeport, Conn., Dec. 11, 1922.

Dear Doctor:—I am sorry to say that you did not pass you failed on Chemistry. I went up to Durham to Dr. Markham and tried to get him to mark you; but he showed me your papers and we could not twist them around so they could conform to law. Are you registered in Arkansas if not take the eclectic board there and then get reciprocity with us, as we want you here particularly myself as you know. One of the doctors got 97 7/10 in chemistry. Personally I think it is about time that old Ernest Markham was off the board and I think that I will drop him when his term expires which is in 2 years. With kindest regards and regrets that you will be delayed in coming to our state I am,

Fraternally yours,
Frank Webb, M.D.

P. S. Can you send me Dr. White's address? Write soon to your friends.
F. Webb.

Under the caption "The Eclectics Take a Purge," an editorial in the Bridgeport (Conn.) *Telegram* refers to the situation as follows:

> The Eclectic society in Bridgeport yesterday made a beginning toward purging itself by withdrawing its endorsement of Dr. James Christian for membership on the eclectic examining board. But why did they ever endorse a man who, on his own first attempt, could not pass a board even so lenient and broad-minded in its outlook on "doctors"?
>
> The situation into which the State of Connecticut has gotten itself by laxity and carelessness in the issuance of medical licenses is illustrated by the fact that but for the timely newspaper exposure, the Kansas "diploma-mill" might be sending its young men into Connecticut by the carload, with a number of its own "graduates" sitting *on the examining board and passing them through as fast as they came!*
>
> It is all very well for the eclectic examining board to point out that the state board of health is not without its responsibility in this matter. The state board has only a perfunctory scrutiny of applications for medical licenses. But there is no gainsaying the fact that when the fakers came into Connecticut to get medical licenses they always, somehow, gravitated before the eclectic board for their examinations and never anywhere else. And that fact is enough to condemn the eclectic board and its methods in the minds of any intelligent person.

The Connecticut Chamber of Commerce is said to be taking steps looking toward the improvement of their laws regulating medical practice in that state. Revisions are contemplated to bring about a higher standard and a more rigid regulation of medical practice with a view to safeguarding the people of the state against illiterate and incompetent doctors. The Chamber of Commerce aims to secure these improvements by independent action, states the report, inasmuch as "repeated efforts of reputable physicians before the General Assembly have failed to secure satisfactory regulations" for the very reason that "inferior and quack doctors have always raised the cry that such movements were governed by selfish motives."

The Diploma Inquiry Continued.—The first result of the special grand jury investigation of the "diploma mill" was that all physicians in Connecticut claiming graduation from the St. Louis College of Physicians and Surgeons are said to have had their licenses revoked by the state department of health, November 22, on recommendation of the grand jury. It was disclosed that special cars were used by Dr. Robert Adcox and Dr. D. R. Alexander to bring recruits to Connecticut for their "medical examinations." Four trips east were made each year and the candidates for doctors "shingles" included barbers, drug clerks, carpenters, soda dispensers, plumbers, automobile mechanics and traffic cops. A phonograph was provided for entertainment and the questions (obtained in advance) were "rehearsed" on the train. Further investigation by the grand jury showed that fake diplomas have been issued from fifteen alleged medical schools in the country in which are included, it is stated, the Eastern University School of Medicine (later the Maryland College of Eclectic Medicine and Surgery), Baltimore; the Oriental College, Washington, D. C., of which Dr. H. P. Holler is dean, and where, it is said, more degrees have been offered than there are on the thermometer, and the Atlanta Eclectic Medical College, Atlanta, Ga. [We have no college listed under this name.—Ed.] Investigation will be made of diplomas issued by these institutions. Evidence bearing on the activities of the Naturopathic Health School, 759 East Thirty-Seventh Street, Chicago, showed that this school advertised *its course for $36 and issued literature which stated:* "Unbelievable as it may seem this school actually instructs how by simple scientific procedure to restore many classes of dead persons to life." Investigators say there are many graduates of this school in New York as well as numerous students of the National College of Chiropractic, Grand Rapids, Mich., which, it is reported, offers a diploma for a correspondence course in chiropractic at $15. Another fact brought out in this investigation was that a circular letter was sent out last spring, with Dr. James A. Christian's name attached, asking recipients of "diplomas" for $125 each for a proposed $35,000 "slush" fund with which to get the state legislature to protect the licenses issued. Governor Templeton has asked Mr. Alcorn to inquire into the authenticity of foreign medical school diplomas also on which many foreign born physicians now in the state have been admitted to practice. Professor Sachs who voluntarily came from St. Louis as a witness has promised to give the names of 1,000 quacks and also the names of regularly licensed physicians of New York, Boston and Chicago, who for a money consideration, it is reported, took medical examinations in Connecticut for the quacks. Evidence was presented pointing to the existence of a well organized reference bureau from which references could be obtained in addition to actual state licenses which would give the holders of fake credentials admission to recognized institutions. Subpenas have been issued for Achilles and James Demarco of New York, who, it is alleged, obtained medical diplomas through Dr. Adcox which enabled recipients of purchased credentials to obtain licenses to practice in New York. It was stated that the Demarcos were given what is tantamount to the exclusive privilege of supplying "doctors" to New York. A warrant was issued for Dr. George E. Sutcliffe on a charge of manslaughter following evidence that during his five months practice in Farmington, six of his patients had died. Dr. Edwin M. Ripley, who sold his practice to Dr. Sutcliffe, has been removed as medical examiner for Farmington after holding office sixteen years. Dr. James W. Cottner, another graduate of the Kansas City School of Medicine and Surgery has also been removed as school physician at Stratford.

ILLINOIS

Chicago

Pasteur Lecture.—The Pasteur Lecture was delivered by Dr. Otto Folin of Harvard University Medical School, Boston, November 23, before the Institute of Medicine of Chicago at the City Club. His subject was "What We Have Learned About Uric Acid."

Society News.—A joint meeting of the Chicago Laryngological and Otological Society and the Chicago Neurological Society will be held, December 3, at the Auditorium Hotel. Following the fellowship dinner a symposium will be held on "Relation of Diseases of Ear, Nose and Throat and Inflammatory Diseases of the Brain and Meninges."

Birth Control Clinic in Court.—A decision by Circuit Court Judge Fisher, November 23, commanded the city to issue a license for a birth control clinic in Chicago. The judge ordered a writ of mandamus directed against the mayor of the city and the city health commissioner. It is stated that an appeal will be taken from the decision. It is reported that quarters for what is termed the "Parents' Clinic" have been established at 1347 North Lincoln Street and equipped at private expense.

Cultists Refused Clinic Tickets.—A committee was recently appointed by the Chicago Medical Society to interview members of the Cook County Board to ask that the custom now in vogue of permitting cults to buy tickets admitting them to the clinic services of the Cook County Hospital, Chicago, be discontinued. The committee of physicians appeared before the public service committee, and the president of the board offered a motion that the practice be abolished. The motion was passed unanimously by the fifteen commissioners present.

Illegal Practitioners Arrested.—According to reports, Juan Derrick, under indictment by the grand jury, is being held on two charges: forgery of the name of Dr. James M. Hall of Chicago, and practicing medicine without a license.——Eugene Kuhne, president of the Biofood Corporation, was arrested, November 23, by John W. Follmer, state inspector for the department of registration and education, on a charge of operating a "cure-all" medicine business in violation of the medical practice act. Kuhne's Biofood literature "guarantees" to cure nineteen different ailments, it is stated.

Personal.—Dr. Otto L. Schmidt was elected president of the Chicago Historical Society at the sixty-seventh annual meeting, November 20.——Prof. W. Lee Lewis, Evanston, Ill., head of the department of chemistry, Northwestern University, has been appointed director of scientific research for the Institute of American Meat Packers with headquarters in Chicago.——Drs. Don C. Sutton, Frederick G. Dyas, Edwin P. Ziesler, Frank J. Novak, Frederick Mueller, Louis Bothman and Samuel M. Feinberg have been appointed to the staff of the Frances E. Willard National Temperance Hospital.

Outbreak of Typhoid Fever.—In the district bounded by Twenty-Ninth Street on the north, Seventy-Ninth Street on the south and Lake Michigan and South Halsted Street, nearly one hundred cases of typhoid have appeared within the last week with two deaths, it is reported.——Forty-six stores in Evanston, Wilmette, Kenilworth, Winnetka, Glencoe and Highland Park have been ordered by the health authorities to cease handling or selling a certain brand of oysters, to which, it is claimed, the north shore typhoid epidemic has been traced. It was found that every one of the patients in Evanston had eaten the same brand of oysters shortly before taken sick. Nearly thirty cases have been reported along the north shore.

Free Dental Clinic.—The children's new free dental clinic at the Cook County Hospital was formally dedicated, November 21, with nearly 4,000 dentists, county officials and child welfare workers in attendance. Don M. Gallie, D.D.S., presided. This is the first clinic in Chicago to provide free dental treatment for children, it is said. It comprises seven dental service outfits, an examination room, a surgical room and a roentgen-ray department. Children are selected for treatment by physicians at the Cook County Hospital, the juvenile court, the county agent and the bureau of social service. Dr. Arthur D. Black, dean of Northwestern University Dental School, stated that plans are being made to establish a free clinic for adults and to enlarge the children's clinic.

INDIANA

License to Practice Refused.—The state board of medical registration and examination has refused Adolph Tixler, Gary, permission to practice medicine in Indiana permanently, it is reported. Tixler was once given a temporary permit to practice but it was suspended last summer, when the board was informed that he had been discharged from the United States Army after a court martial. Tixler had continued practicing, it is stated, in violation of the law after his temporary permit was suspended.

IOWA

Hospital News.—The superintendent of the University Hospital of the State University of Iowa Medical School, Iowa City, announces the opening of an annex to be given over solely to the care and treatment of diabetes cases. ——The new Samaritan Hospital Association recently voted to continue operation of the institution at Sioux City, instead of merging it with another hospital.

MARYLAND

De Lamar Lectures.—Prof. Friedrich Fülleborn of the School of Tropical Medicine, Hamburg, Germany, delivered a lecture on "Filariasis" as one of the de Lamar lectures in hygiene, at the School of Hygiene and Public Health, Johns Hopkins University, November 26.

Meeting of Book and Journal Club.—The Book and Journal Club, of the Medical and Chirurgical Faculty, met November 20, in Osler Hall. Charles Stevens of Baltimore gave an illustrated lecture on "Pioneers of Medicine." There was also a loan exhibition of pictures, books and instruments. Dr. William H. Welch presented the Frederick Wiesenthal coat of arms to the faculty, which, the gift of John Milton Griffith, was brought to this country from Prussia by Dr. Wiesenthal.

MASSACHUSETTS

Clinical and Surgical Association.—A delegation of members of the Massachusetts Clinical and Surgical Association were the guests at Fall River, November 14, of Dr. Philemon E. Truesdale at his new hospital.

MINNESOTA

Diphtheria Closes Schools.—The schools and churches of Preston have been closed by the health officer to prevent an epidemic of diphtheria.

Personal.—Drs. Christian L. Roholt, Waverly, and John J. Catlin, Buffalo, were elected president and secretary-treasurer, respectively, of the Wright County Medical Society at the annual meeting in Buff [illegible] Dr. John [illegible] who has been superintendent of the Ancker Hospital, St. Paul, since the death of Dr. Ancker the first part of the year, has resigned on account of poor health.

Society News.—At the annual meeting of the Minnesota Hospital Association in Milwaukee, Dr. Karl H. Van Norman, superintendent of the Miller Hospital, St. Paul, was elected president. William Mills, superintendent of the Swedish Hospital, Minneapolis, was elected secretary.——At the annual meeting of the Minnesota State Sanitary Conference in St. Paul, recently, Dr. Ludwig L. Sogge, Windom, was elected president; Dr. George G. Balcom, Lake Wilson, vice president, and Dr. Albert J. Chesley, Minneapolis, secretary-treasurer.

MISSOURI

"Prepare for Inspection."—Dr. Cortez F. Enloe, state health commissioner, announced, November 13, that every physician and surgeon, osteopath, chiropractor, or any one practicing any form of healing in Missouri, will be listed by the state board of health and their credentials and records thoroughly investigated.

NEBRASKA

Personal.—Dr. Stanley C. Clements has succeeded Dr. Roland Breuer as examining physician at the state tuberculosis association's clinic at Lincoln.——Dr. Harrison I. Shull, Auburn, pioneer physician, has retired from practice at the age of 83.

NEW JERSEY

New Hospital Superintendents.—Dr. Alfred A. Mutter, Kearney, has been appointed resident medical director of the New Jersey Home for Disabled Soldiers, Kearney, to succeed Dr. Burtis E. Goldberg, Arlington, who resigned recently.——Dr. Howard R. Dukes, Kearney, has been appointed medical director of the West Hudson Hospital, Arlington, to succeed Dr. Widmer E. Doremus, who resigned. Dr. Burtis E. Goldberg has been appointed first assistant to Dr. Chester R. Brown on the medical service.

NEW YORK

New Medical Society.—The Riverside Medical Society has been organized in New York by physicians of the west end section of the city. Dr. Isador W. Kahn is president; Dr. Martin Cohen, vice president; Dr. Samuel Morse, secretary, and Dr. Morris Murray Peshkin, treasurer. The first meeting was held at the Hotel Majestic, November 20. Dr. Smith Ely Jelliffe was the principal speaker.

Tuberculosis Campaign.—A series of lectures and clinics are now being given to physicians at Syracuse with the cooperation of the Medical College of Syracuse University, the city health department and the Syracuse Health and Tuberculosis Demonstration, which is financed largely by the Milbank Foundation (The Journal, November 17, p. 1700). All phases of the tuberculosis problem are being presented with special attention to early diagnosis. Among those giving lectures and clinics are: Drs. Edward R. Baldwin, Trudeau Sanatorium, Saranac Lake; Oliver W. H. Mitchell, professor of bacteriology, Syracuse University; Charles Hendee Smith, professor of clinical diseases of children, Columbia University, New York City; Henry G. Bugbee, St. Luke's Hospital, New York City, and Livingston Farrand, president of Cornell University, New York City.

United Hospital Fund.—The forty-fourth annual report of the United Hospital Fund, published November 14, covers the work of fifty-six hospitals. During the year (ending June 30, 1923) 201,271 patients were treated, of whom 41,310 were treated without charge. Forty-five of the hospitals are in New York City, eleven in Brooklyn. Of the patients who paid something for their care 20,248 were public charges for whom the city paid in part and 88,596 were ward patients, part of whose expenses were paid by themselves or relatives. The total expense of operating all the hospitals in the fund was $15,641,369. Receipts of the fund were $643,626, an increase of $58,069 over last year. Legacies were as follows: Charlotte Williams, $187; Eleanor Fisher Clarke, $4,916; Philip Findler, $3,248, and Julius Loewenthal, $500. The report refers to adequate ambulance provision as one of the most vital necessities in the city and urges that the service be taken over by the city and managed like the police and fire departments.

New York City

Hospitals to Consolidate.—Following a survey of the hospital situation in the downtown district, the boards of directors of the Beekman Street and Broad Street hospitals have decided to consolidate the two institutions.

Tuberculosis Campaign in Bowling Green District.—Emphasis has recently been laid on the fact that the Bowling Green district of Manhattan is twenty-five years behind certain other sections of the city in fighting tuberculosis. The death rate in this section of the city is that of twenty-five years ago, and for every tuberculosis death it is estimated that there are six living persons who have the disease. The Bowling Green Neighborhood Association is starting a campaign to combat the disease in that part of the city.

Associated Out-Patient Clinics of the City of New York.—At a meeting of the section of medicine of the Associated Out-Patient Clinics held, November 21, the standards for medical clinics drafted by the executive committee of the section were discussed. The program included these topics: "Should the number of patients admitted be limited in relation to the number of physicians?" "Should patients be diagnosed in the general medical clinic before assignment to special classes?" "Is thoroughness of records essential to efficient work in medicine?" "Should records be filed centrally?" "What should be the relation of the out-patient staff to the medical staff of the hospital?" "Value and use of standards." "Suggestions for further activities of the section." The proposed standards were adopted and will be published at a later date.

Quacks in New York.—Recent exposures in Connecticut of men who are practicing medicine under the protection of bogus medical diplomas has led to a survey of the situation in New York. During the course of exposures in Connecticut charges were made that there were among the interns of the Lying-In Hospital several who held diplomas from alleged Missouri diploma mills. The records of the hospital show that among all the interns employed in the hospital during the last few years only three presented credentials from the St. Louis College of Physicians and Surgeons and each of these had had actual medical instruction in other institutions. Dr. S. Dana Hubbard, director of public health education of the department of health, makes the statement that there are from 1,200 to 1,500 persons practicing medicine illegally in Greater New York, most of whom are chiropractors.

OHIO

Quarantine for Diphtheria.—An outbreak of diphtheria at Burbank has caused Wayne County health officials to quarantine the entire village.

Hanna Lecture.—Prof. A. Biedl, Prague, Czechoslovakia, delivered the eleventh Hanna lecture at the medical library of Western Reserve University School of Medicine, Cleveland, November 19. His subject was "The Nervous and Endocrine Control of the Functions of the Alimentary Tract."

OREGON

Dr. Josephi Honored.—The degree of LL.D. is to be conferred on Dr. Simeon E. Josephi, Portland, by the University of Oregon at the commencement exercises at Eugene, in June, 1924, in recognition of his long services and to commemorate the twenty-five years he spent as dean of the medical school of that university. Dr. Josephi was first dean of the Medical School of the University of Oregon.

PENNSYLVANIA

Medical Library Bequeathed to Hospital.—The medical library of the late Dr. Jacob Rosenbloom, Pittsburgh, has been bequeathed to Beth Israel Hospital, New York City, it was announced, November 18. The collection is valued at $50,000.

Philadelphia

Welfare Campaign Closes.—The year's campaign of the welfare federation to raise $3,000,000 with which to support the 130 member agencies was closed, November 15. A total of $2,883,978 was raised. The trustees of the federation will undertake to raise the additional sum.

RHODE ISLAND

New Medical Practice Act.—The Rhode Island Board of Health has directed the secretary, Dr. Byron U. Richards, to make a survey of the laws of several states with a view to amendments of the present medical practice act of Rhode Island, which will be sought at the next session of the state legislature. One of the chief aims of the proposed amendments will be to provide a heavier penalty for violations of the medical practice act. The maximum fine under the present law for a serious violation of the statute is $50. Another change sought is to require better preparation of persons seeking to practice medicine in Rhode Island.

TENNESSEE

County Physicians Organize.—The Tri-State County Medical Society was organized, November 8, at McKenzie, by physicians of Henry, Carroll and Weakley counties. Dr. Augustus A. Oliver, Paris, was elected president; Dr. Harris T. Collier, McKenzie, vice president, and Dr. R. M. Little, Martin, secretary. Meetings will be held the first Tuesday in each month.

TEXAS

Dr. Cary Honored.—The board of trustees of Baylor University College of Medicine, Dallas, recently officially named the medical science building in honor of Dr. Edward H. Cary, Dallas.

Missouri "Diplomas" in Texas.—Dr. Thomas J. Crowe, Dallas, chairman of the state board of medical examiners, is gathering evidence against a group of ten so-called physicians practicing medicine in one county alone who are holders of "diplomas" issued by one or the other of the Missouri schools now under investigation following the issue of fake diplomas. Many other such diploma holders are practicing in the state, it was announced at a meeting of the board of councillors of the state medical association held at Fort Worth, recently.

VIRGINIA

Personal.—Dr. Richard H. Meade, Jr., Richmond, has been appointed a medical missionary to St. James Hospital, Nanking, China. Dr. Henry R. Taylor, Norfolk, is in charge of the institution.

Medical Association of the Valley of Virginia.—At the annual meeting of the association in Staunton, recently, Dr. John M. Emmett, Clifton Forge, was elected president; Drs. David M. Kipps, Front Royal, Achilles L. Tynes, Staunton, and Benjamin B. Dutton, Winchester, vice presidents, and Dr. Alex F. Robertson, Jr., Staunton, secretary.

WISCONSIN

Appointment by State Board of Control.—The State Board of Control has announced the appointment of Dr. C. C. Atherton, Kankakee, Ill., as superintendent of the Southern Wisconsin Colony and Training School for the Feeble-Minded. Dr. Atherton suceeds Dr. H. M. Werner, resigned.

Ninth Councilor District Meeting.—Fifty physicians from central Wisconsin attended the quarterly meeting of the Ninth Councilor District Medical Society, at Marshfield, November 22. Those who spoke before the society were: Drs. S. R. Slaymaker, Chicago; Edward L. Miloslavich, Milwaukee; K. W. Doege, Marshfield, and Mr. J. G. Crownhart, secretary of the state society.

Personal.—Paul F. Clark, Ph.D., professor of medical bacteriology at the University of Wisconsin, has returned from a semester's leave of absence. Dr. Clark served as delegate at the Pasteur centenary in Paris.——Three additions to the faculty of Marquette University School of Medicine, Milwaukee, have been announced by Dean Jermain. The new members are: Dr. Frederick Eigenberger, Sheboygan, pathologist; Dr. Joseph P. Hettwer, London, England, and Dr. Harry H. Beckman, New York.——Drs. Ralph Kaysen, Morrelle M. Bunch, Arthur H. Cohn and Urban A. Schlueter have been appointed police surgeons for Milwaukee.——Dr. Henry C. Werner has resigned as superintendent of the Southern Wisconsin Home for the Feebleminded and Epileptic, Union Grove, effective December 1.——Dr. Guerney Taylor, Milwaukee, has been elected secretary of the Wisconsin Anti-Tuberculosis Association.

CANAL ZONE

Society News.—The Medical Association of the Isthmian Canal Zone held its one hundred and ninety-eighth meeting at the Ancon Hospital recently. Dr. Jesse L. Byrd, health officer of Cristobal-Colon, presented "A Résumé of the Antimalarial Campaign at Cristobal-Colon, 1917-1922," and Dr. Dalferes P. Curry gave a lantern slide demonstration of the field work of the division of sanitation. Dr. Byrd pointed out that Cristobal-Colon, once most unhealthy, has been made thoroughly sanitary, yellow fever being practically eradicated, and malaria controlled.

CANADA

Special Training in Tuberculosis.—Special training in tuberculosis will be given in the various medical colleges of Canada. The arrangements at Queen's University Faculty of Medicine, Kingston, Ont., provide for one afternoon weekly at Mowat Sanatorium for the fifth year with particular attention to pulmonary tuberculosis; other clinics are devoted entirely to chronic nonpulmonary conditions. The University of Toronto Faculty of Medicine, Toronto, teaches tuberculosis by bedside clinics in the three clinical years. In the final year a systematic course is given, including lectures and bedside clinics. In the outpatient department of the Hospital for Sick Children, Toronto, a special clinic is held twice a week. A similar outpatient clinic is held at the General Hospital, Toronto. In the Western University Medical School, London, Ont., the clinic work is done in general wards and the outpatient clinics of the Victoria Hospital, London.

Society News.—At the third annual meeting of the Canadian Neuro-Psychiatric Association in Kingston, October 17, the following officers were elected for the ensuing year: president, Dr. Nelson H. Beemer, Mimico; vice president, Dr. James M. Forster, Whitby, and secretary, Dr. F. S. Vrooman, Toronto. Hon. Forbes E. Godfrey, minister of health, delivered an address.——At the annual meeting of the Canadian Tuberculosis Association in Edmonton, Dr. Charles D. Parfitt, Gravenhurst, was elected president. The next meeting will be held in Ottawa. A resolution in favor of establishing laboratories for research was adopted. It is hoped that $5,000 a year will be available for this purpose.——At the first meeting of the Saskatoon Medical Society at Saskatoon, Sask., October 7, the reorganization of the local society was completed and a public health day planned. Meetings will be held every second month. Officers of the society are: president, Dr. George R. Morse, Saskatoon; vice presidents, Drs. James J. Finn, Dundurn, and Alexander K. Cameron, Delisle, and secretary-treasurer, Dr. Ernest R. Myers, Saskatoon.

Personal.—Dr. Michael Steele, managing director of the Ancrum Brae Sanatorium, Stratford, Ont., and former member of parliament for South Perth, 1911-1921, has been appointed judge of the juvenile court of the county of Perth. ——Dr. John R. Currie has been appointed university medical officer, and Earl White, Ph.D., lecturer in chemistry, at Queens University Faculty of Medicine, Kingston, Ont.——Dr. William R. Reeds, who is working as a medical missionary in Honan Providence, China, has returned to that country after spending his furlough at his home in Toronto.——Drs. Frederick A. Aylesworth, Clarence E. Hill, Samuel M. Lyon and Walter W. Wright have been appointed senior demonstrators in ophthalmology at the University of Toronto Faculty of Medicine.——Dr. Andrew S. Moorhead, Toronto, has been appointed chief medical adviser of the Central Appeal Board, dealing with soldiers' pensions, with headquarters in Toronto. Dr. Frank C. McTavish has been appointed medical adviser for the western district with headquarters at Vancouver, B. C.——Dr. Anna St. Clair Creighton, Halifax, N. S., has been appointed to the roentgen-ray department of the Finley Hospital, Dubuque, Iowa.

GENERAL

Hospital Expenditures.—At the annual meeting of the American Hospital Association in Milwaukee, recently, it was stated that the total value of hospital buildings and grounds in the United States is nearly $2,000,000,000, and the total expenditure annually for maintenance of the 6,000 hospitals is approximately $525,000,000. A sum of $350,000,000 will be spent during the next year for new buildings and equipment, it was also stated.

New Child Health Film.—The U. S. Children's Bureau, Department of Labor, Washington, D. C., announces the production of a new motion picture on prenatal care, entitled "Well Born." This will be loaned to responsible persons and agencies with the understanding that the borrower defrays express charges back and forth, employs a competent motion picture operator, and guarantees safe keeping. Those who desire to purchase the film may apply to the bureau for information and prices.

Goiter Association to Hold Meeting.—The American Society for the Study of Goiter will hold a session in Bloomington, Ill., Jan. 24-26, 1924, under the presidency of Dr. E. P. Sloan, Bloomington. The first day of the session will be devoted to operative clinics, and the remaining two days to scientific sessions. The program includes discussions by Drs. F. H. Lahey, Boston; W. Babcock, Philadelphia; W. S. Bainbridge, New York City, and W. Engelbach, St. Louis. Information concerning the session may be had from the secretary, Dr. J. D. Moschelle, Indianapolis.

Nobel Prize Again Divided.—Drs. J. J. R. McLeod, Toronto, Canada, and Frederick G. Banting, Toronto, between whom the Nobel prize for medicine of $40,000 for 1923 was divided, have each again divided the prize, so that James B. Collip, Ph.D., professor of biochemistry in the University of Alberta Faculty of Medicine, Edmonton, and Dr. C. H. Best, Toronto, collaborators in the work on insulin, will each receive $10,000, according to *Science*. Dr. Banting had already donated $10,000 of his share of the prize to the Banting Research Fund (The Journal, November 24, p. 1797).

Tri-State Changes Name.—The Tri-State District Medical Society (Iowa, Illinois, Wisconsin) added Minnesota, Indiana and Missouri to its territory and changed its name to the Interstate Assembly of Physicians and Surgeons at the annual meeting in Des Moines, Iowa, October 29-November 1 (The Journal, October 20, p. 1371, and November 17, p. 1702). The next annual meeting will be held at Rochester, Minn., under the presidency of Dr. Clifford U. Collins, Peoria, Ill. About thirty clinics were given during the four day session. A clinic journey to Canada and the British Isles in the near future was proposed.

The National Board Bulletin.—The Journal has received a copy of No. 1, Vol. 1, of the *National Board Bulletin* to be published bimonthly by the National Board of Medical Examiners. It is to be a medium through which candidates for the examination, those who have secured the board's certificate, medical teachers or others who act as subsidiary examiners, and others interested, may be kept informed in regard to the work and progress of the board. It will contain information in regard to forthcoming examinations and reports of passed examinations. This bulletin has a justifiable reason for its existence and contains interesting information in regard to the National Board of Medical Examiners.

Scientific Society Organized.—The Northwest Scientific Association was organized at a meeting in Spokane, recently, with 134 charter members. This association opens its doors to any one interested in the various lines of scientific endeavor in medicine, bacteriology, zoology, physics, chemistry, psychology, education and history. Members will be drawn largely from the states of Oregon, Idaho, Montana and Washington and the Canadian provinces of British Columbia, Alberta and Saskatchewan. One or more regular meetings will be held each year for the presentation and discussion of papers. Martin F. Angell, Ph.D., dean of the University of Idaho, Moscow, was elected president, and Frederick D. Heald, Ph.D., State College of Washington, Pullman, secretary.

Society News.—The State and Provincial Health Officers of North America announced recently that the next meeting will be in Lansing, Mich., in May, 1924. Dr. Clyde C. Slemons, health officer of Grand Rapids, Mich., has been elected head of the health administration section of the organization.—The annual meeting of the Association for Research in Nervous and Mental Diseases will be held at the Hotel Commodore, New York City, December 27-28, under the presidency of Dr. Walter Timme, New York City. The subject for discussion will be: "Hereditary Nervous and Mental Diseases."——The next annual meeting of the American Student Health Association will be held in Cincinnati, Jan. 1-2, 1924, under the presidency of Dr. Joseph E. Raycroft; Princeton, N. J. The program will be devoted to an informal consideration of clinical questions.——The annual mid-winter meeting of the Sioux Valley Medical Association will be held in Sioux City, Iowa, Jan. 22-24, 1924.

American Association for the Advancement of Science.—At a meeting of the executive committee of the association in Washington, D. C., October 14, the appointment of Charles A. Shull, Ph.D., of the University of Chicago, to be assistant secretary of the association in the place of Samuel F. Trelease, Ph.D., resigned, was approved. One hundred and twenty-six fellows were elected. On Sept. 30, 1923, the total enrolment was 11,704. It was voted that the association shall hold a summer meeting at Buffalo, preceding the Toronto, Canada, meeting of the British Association for the Advancement of Science, September, 1924. It was also voted that the annual meeting for 1927 shall be held in Philadelphia. Future annual meetings have been arranged as follows:

1924, Cincinnati, Dec. 27, 1923-Jan. 2, 1924.
1925, Washington, D. C., Dec. 29, 1924-Jan. 3, 1925.
1926, Kansas City, Mo., Dec. 28, 1925-Jan. 1, 1926.
1927, Philadelphia, Dec. 27, 1926-Jan. 1, 1927.
1928, ——————, Dec. 26-31, 1927.
1929, New York, Dec. 27, 1928-Jan. 3, 1929.

American Child Health Association Scholarships.—Resident and travel scholarships by the American Child Health Association have been awarded to fifteen American physicians, it was announced November 20. They are: Drs. Charles W. Armstrong, Salisbury, N. C.; William W. Bauer, Milwaukee; Romulus L. Carlton, Winston-Salem, N. C.; Eugene O. Chimene, Minneapolis, Kan.; William De Kleine, Saginaw, Mich.; Seymour Fiske, New York; Arthur M. Kimberly, Bristol, Conn.; George A. Lamont, Vancouver, B. C., Canada; George N. Leonard, Albany, N. Y.; Marie M. P. Long, Memphis, Tenn.; George C. Marlette, Bay Minette, Ala.; Walter R. Moore, St. Joseph, Mo.; Russell B. Sprague, Yarmouthport, Mass.; Thomas D. Walker, Macon, Ga., and Ruth Weissman, Dorchester, Mass. These scholarships were awarded on the basis of graduation from an accredited medical school, and on evidence of the candidate's interest in child health work. Dr. Richard Bolt, director of medical service of the association, is authorized by the committee on awards to act in an advisory capacity, to assist candidates in the selection of courses.

Abridged Life Tables.—The Bureau of the Census has just issued "United States Abridged Life Tables, 1919-1920." This is the third official publication of life tables by the bureau, and is intended as a supplement to the much larger volume of life tables published in 1921. These have been called "abridged" because of the process of construction and because life table values are given at every fifth year of age instead of at each year of age. They give four life table functions: rate of mortality per thousand, number of survivors to each age out of 100,000 born alive, number of deaths in each age interval out of 100,000 born alive, and the complete expectation of life in years. The abridged tables relate to 74 per cent. of the population of the United States, whereas the 1910 tables relate to about 28 per cent., of which not more than 2 per cent. are negroes. Under these circumstances life tables for total populations and for white populations do not differ much, but, in the groups of population for which the abridged tables were constructed, the percentage of colored people varies from 0.6 to as much as 51.4 per cent. of the group. These tables, except for Hawaii, are for white or negro populations, not for the aggregate population. To render comparison easy, the values of each life table function are grouped in tables by sex. By various means facts are indicated briefly, for example, bold-faced figures in any age group indicate that the rate of mortality among females is greater than among males, and figures in italics indicate values taken from the 1909-1911 life tables for whites and negroes in the original registration states. The second part of this work is a description of the process of computing the abridged tables, the third the original statistics on which they are based. There are in all ninety-two tables by sex; eighty are based on statistics of the white population, eight on those of the negro population, and four on the population of Hawaii.

Fraud Order Against Oriental University.—The Department of the Interior, according to a memorandum issued by the U. S. Bureau of Education, has been advised that a fraud order against Oriental University, a correspondence school located in Washington, D. C., preventing its future use of the mails, was issued by the Post Office Department on November 5. An investigation of the institution made by that department showed that it was engaged in conducting a scheme for obtaining money through the mails by false pretenses.

The Oriental University was incorporated under the laws of the State of Virginia on March 11, 1904, to conduct "a nonsectarian, coeducational, and orientalistic education by residence and correspondence instruction, to undergraduate and graduate students; to carry on instruction and institute courses to lead to any of the bachelor, master, or doctor degrees in theology, philosophy, arts, sciences, pedagogy, literature, music, law, medicine, and orientalistics."

The "principal" offices of the Oriental University were first located in Alexandria, Va., but in 1912 were removed to Dominion Heights, Cherrydale, Va.

On Jan. 5, 1915, a paper was filed with the recorder of deeds of the District of Columbia, certifying that the board of trustees of the Eastern University (located in Washington, D. C., and incorporated under the District laws, Nov. 11, 1904), had voted to change the name of the institution to the "Oriental University." The filing of this paper constituted the institution's claim in incorporation under the laws of the District of Columbia.

The object of the incorporation of Eastern University, whose charter was thus taken over by Oriental University, was stated to be "for the purpose of providing instruction in the various departments of the university, either by correspondence or personal attendance," including, in addition to the usual departments of arts and sciences, graduate school, engineering department, medical department, law, pharmacy, dentistry, and theology, "a school of osteopathy and osteotherapy, school of scientific medical massage, school of chiropractic, school of electro-therapeutics, school of chiropody, school of psychology." On the completion of the course in one of these departments or schools an appropriate degree was provided, listed in the articles of incorporation as follows: B.A., M.A., Ph.D., B.S., M.D., LL.B., LL.D., Ph.G., LL.M., D.D.S., D.D., D.O., D.M., D.C., D.P.; and D. Psychol.

Upon acquiring the charter of Eastern University the Oriental University moved its "principal" office to Washington, D. C., where it has been located in the home of its president and founder, H. P. Holler, at 1702 Oregon Avenue N.W., where most of its business is conducted.

The evidence on which the recommendation for the issuance of a fraud order was based showed that while Oriental University through its literature advertised resident courses, the institution operated exclusively through the mails; the numerous "resident" and "nonresident" professors listed in its catalogue performed no actual duties, except in a few instances to sign diplomas; that the faculty lists contained names of persons without their consent or knowledge; that the biennial registers of the institution have contained long lists of students "ex-matriculated" who were never in fact students of the university; that the Oriental University had no facilities for personally instructing resident students, and no facilities for instructing students in special lines such as medicine and engineering by correspondence, except that it had contracts with certain alleged "professors" who may or may not have had the qualifications to teach those subjects.

FOREIGN

Hospital News.—A wealthy Persian merchant, Haji Mohamed Hussan Namazi, has presented a maternity hospital to Shiraz, which will be operated by the Church Missionary Society. Dr. Emmerline Stuart of Dublin, Ireland, will direct the activities of the institution.

Personal.—Dr. W. Miguet, representative of the Belgium Child Health Association, at the American Child Health Association sessions, recently visited Fargo, N. D., to observe the work being done in the Fargo Child Health Demonstration under the auspices of the U. S. Public Health Service. ——The Naples Accademia Leonardo da Vinci has elected Dr. Sauerbruch of Munich an honorary member, in token of appreciation of his work in surgery of the thorax.

The Netherlands Council on Pharmacy and Chemistry.—The fifth publication issued by the Netherlands Council has been received. It contains the annual report for 1922, special articles on "Mistletoe in Treatment of High Blood Pressure"; "Comparison of Pituitary Preparations"; "Preferable Formula for Procain Solutions," and "Pregl's Iodin Solution," and thirty pages are devoted to analysis and comment on twenty-seven different proprietary preparations. The varying behavior of solutions of procain is ascribed to the reaction. In a slightly acid solution, it can be sterilized at 100 C. But when the reaction veers to alkaline, it cannot stand a temperature of 100.

A Plea for the Retention of the Famous Lister Ward in Glasgow.—James A. Morris, associate of the Royal Scottish Academy, fellow of the Royal Institute of British Architects, and a member of the Art Workers Guild, has issued a dignified and temperate protest against razing "the famous Lister Ward" by the managers of the Royal Infirmary in Glasgow. He suggests, instead, a plan for saving the Lister Ward through making it a museum, as was suggested originally by Lucas-Championnière, thus establishing it as a world shrine in memory of the greatest public benefactor the city of Glasgow has ever had. Even to contemplate the destruction of the Lister Ward at this time, when the centennial birthday of Lister is to be celebrated throughout the world so soon (April 5, 1927), he says, is evidence of vast ignorance of the attitude of the medical profession and their reverence for Lister, or of gross indifference to the sentiments and real feeling of mankind for this benevolent and kindly father of modern scientific surgery.

Medical News from Japan.—The *Japan Medical World* states that during the earthquake and fire, September 1, its publishing, editorial offices and library were completely destroyed by fire. Numbers 9 and 10, Vol. 3, are published as one issue under date of October 15 owing to these conditions. Temporary offices have been established at 531 Sendagayo, Tokyo, and regular publication will be resumed with the November number.——It has been ascertained that the fire, which destroyed the Tokyo Imperial University and the Japan College of Dentistry during the earthquake, September 1, originated in each case from the explosion of chemicals in their laboratories.——Professors on being retired because of the age limit will receive retirement allowances at the time of dismissal in addition to their pensions, it is announced by the officials of the Tokyo Imperial University.——To commemorate the Imperial wedding next spring the Tokyo Chamber of Commerce will establish a new hospital which will give medical aid to the populace at cost price.——Among recent welfare projects approved by the home office is the establishment of an orphanage for children at a cost of 950,000 yen ($475,000) and additions to the tuberculosis sanatorium at a cost of 200,000 yen ($100,000). The establishment of a national leprosarium and a national hospital for the insane was disapproved.

The Eugenics Conference in Sweden.—The Mendel Society of the University of Lund invited the International Eugenics Commission to a conference, and Herwerden gives an account of the successful meeting in the *Nederlandsch Tijdschrift.* The president of the Eugenic Education Society, Major Leonard Darwin, the second son of Charles Darwin, presided. He also presided at the first eugenics congress at London in 1911. The second congress was held in New York in 1921. America was represented at the conference in August by Dr. Allan J. McLaughlin, director of the Eugenics Record Office at Coldsprings Harbor, N. Y. He has been consulting with various governments in Europe in regard to selecting immigrants before they sail, instead of waiting until they arrive in America. The Mendel Society at Lund publishes the journal *Hereditas.* The president of the society is Nilsson Ehle, whose research on the crossing of grains has materially increased Sweden's harvests. The commission visited Upsala, where Lundborg presides over the State Institute for Research on Heredity, the only one of the kind in Europe. The anthropologic research of his field workers has already resulted in a card catalogue of all Swedish subjects. The genealogical trees of the Laplanders show that notwithstanding their nomadic life, their church records have been kept without a break for centuries. The Swedish legislature has been considering a bill for the sterilization of the unfit, but Lundborg advised against its adoption.

Government Services

Captain Gwynne Acquitted

Capt. Samuel C. Gwynne, M. C., U. S. Army, retired, was acquitted by a court martial at Washington, D. C., November 7, of charges growing out of the case of Pvt. Guy Pendleton (THE JOURNAL, August 25, p. 671). Captain Gwynne was the ward surgeon at Camp Eustis, Va., where Private Pendleton was first under treatment.

Hospitals Authorized

Pursuant to instructions of the Secretary of War the organization of General Hospital No. 121 (St. Francis Hospital Unit, Wichita, Kansas), organized reserves; General Hospital No. 42 (University of Maryland School of Medicine Unit, Baltimore), organized reserves; Evacuation Hospital No. 5 (Massachusetts Homeopathic Hospital Unit, Boston), and Evacuation Hospital No. 55 (St. Mary's Hospital Unit, Oshkosh, Wis.) have been authorized.

U. S. Public Health Service Personals

Asst. Surg.-Gen. Rupert Blue has been relieved from duty in charge of service operations in Europe, and directed to proceed to the United States. Dr. Blue, who has been abroad for the last three years, attended the recent opium conference of the League of Nations at Geneva, Switzerland, as a special delegate from the United States. He was recently made a Chevalier of the Legion of Honor by the French government. Surg. Walter W. King of the American consulate in London has been directed to proceed to Paris, France, to assume charge of the U. S. Public Health Service activities in Europe, succeeding Dr. Blue.——P. A. Surg. Richard B. [illegible]orment, Jr., head of the child hygiene d[illegible]t, [illegible]town, Md., has resigned from the servi[illegible] expiration of four months' accrued leave [illegible] 1924.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 12, 1923.

The Panel Struggle

The amended offer by the minister of health is regarded by the panel physicians as a great victory, and by the representatives of the friendly societies as a surrender. Dr. Brackenbury, chairman of the Insurance Acts Committee of the British Medical Association, says: "We have won on all points on which we placed most importance, and gained an advance on the rest. On the whole, I think we have done very well. The main point, first, is that we have secured that the position of our remuneration and of medical benefit shall be in the form in which we wanted it. In the second place, we have secured that the remuneration of the physicians shall be determined on its merits, between the government and the profession and nobody else. The third point is in reference to the character of the inquiry by the royal commission into the panel system. This is to be a full inquiry, not merely into the medical side and the financial side, but also into the working of the approved (friendly) societies, and the commissioners will be an independent body of persons without vested interests." On the other hand, Sir Thomas Neill, chairman of the Consultative Committee of the Approved Societies, said: "The government, not wishing to take any more money from the taxpayers, and having raised the physicians' fee without considering the societies, is now going to rob the henroost of the insured members to satisfy the physicians. The only bulwark the insured persons have against the proposals of the government to rob their funds is now the House of Commons. We welcome the suggestion of a full inquiry. Many things can be raised there which have not been said." It has also been decided, in view of the general election now so near, to circularize the 15 million insured persons denouncing this as the first occasion in which any government has sought to appropriate their funds for other purposes than those for which they were contributed.

Child Assault and Venereal Disease

At a meeting of the National Council for Combating Venereal Diseases, a resolution was passed that the council views with concern the extent of the crime of child assault. Many of these assaults lead to the communication of venereal disease to young girls. Public opinion should be aroused to the evil, and the existing laws should be stringently administered. The council is of the opinion that financial penalties do not act as a sufficient deterrent, and that severe penalties should be imposed. At a joint meeting of the National Council and the Society for the Prevention of Venereal Diseases (whose differences have frequently been described in previous letters), it was resolved that the ultimate fusion of the two societies is desirable. It was also resolved that the law should be so altered as to permit qualified pharmacists to sell *ad hoc* disinfectants for the prevention of venereal disease in those who expose themselves to infection, provided such disinfectants are sold in a form approved and with instructions for use by some competent authority.

The Health of School Children

The report of Sir George Newman, chief medical officer of the board of education on "The Health of the School Child in 1922," has just been issued. He laments the need for financial restrictions, which have arrested almost at their birth many of the developments proposed in recent legislation. The "most serious and wasteful defect in our national health service" is, he considers, the lack of adequate supervision of the infant during preschool life. The most urgent questions awaiting solution in many educational areas are: (1) the further coordination of the school medical work with the public health service; (2) the physical condition of children under 5 years of age; (3) the effective education of the dull or backward child; (4) the importance of a comprehensive scheme for the treatment of dental defects, and (5) the systematic organization of the teaching of hygiene and physical training. During 1922, 1,751,122 children were subjected to routine medical inspection, and to this number must be added 635,628 children who were examined as "special" cases. Thus, of the 5,180,589 children in average attendance at the elementary school during 1922, no less than 2,386,750, or 46 per cent., were medically inspected. The cooperation of parents is being cultivated in every possible way; very few now object to school medical inspection, and in the great majority of cases it is welcomed. The school medical officers report increased attendance of parents with their children at the school clinics. On the need for supervision of the child before it reaches the school age, Sir George Newman is emphatic. From 80 to 90 per cent. of children are born healthy and with potentiality of leading healthy and normal lives. The work on behalf of the new-born child increases from year to year, yet, comprehensive as it has become, the close supervision of the infant extends but little beyond the first year. After the first year of life the young child has to bear a heavy burden of environmental neglect, associated with bad housing, poverty, and absence of hygienic supervision. As a result, the school medical service is faced with the fact that, out of an infant population born healthy, from 35 to 40 per cent. admitted to school at 5 years of age bear physical defects which might have been either prevented or cured. This is the most serious and wasteful defect in our national health service.

As regards sanitation, the report says, it travels from the school to the home, and the child of today is the householder of tomorrow. The effective teaching of hygiene in each school and to each class is of the first importance. If for eight or nine years the child is taught of what personal and public health really consist, immense good will result. The child and the young adolescent must be trained in the way of health and physical efficiency. In order to secure this, it is necessary that the teacher be properly equipped. A great responsibility rests on the training colleges to provide this preparation for the teacher. The health instruction in the school must be adequate. It should be not only information, but also a direction; it should be not only intermittent and theoretical, but also continuous and practical. Every week, some definite guidance should be given and repeated until habits are formed. Until hygiene is a habit and a way of life, it is of little avail.

DEFECTS AND DISEASES

Routine medical inspection shows that about 40 per cent. of the children have a greater or less degree of physical defect. Definite malnutrition, heart disease, anemia and deformities are each present in about 2 per cent.—broadly, 100,000 children suffering from each of the four conditions. A large burden of disease, 20 per cent., consists of defective vision; ear, nose and throat disease, 14 per cent.; and a severe degree of dental disease, 34 per cent. As to vision, 10 per cent. of the children suffer from serious defect. These are maladies found at the school; there are, in addition, the infectious diseases, which unfortunately often leave behind a good deal of disablement and the seeds of further disease. In nineteen of the largest representative areas in England and Wales there was a routine medical inspection of 707,346 children. Of this total, 241,052 suffered from dental disease, 145,521 from defective vision, and 90,832 from nose and throat disease. Enlarged tonsils and adenoids are "a serious mass of debilitating disease."

VIENNA

(From Our Regular Correspondent)

Oct. 31, 1923.

Wilful Infection with Syphilis—A Criminal Offense

For the first time in this country, a county court has passed sentence on a man who knowingly transmitted syphilis to another person; this new departure may prove of the utmost importance in the promotion of public health. When the girl who was infected became aware of her misfortune, she sued for damages, and for the expenses incurred by her for medical treatment and loss of work. At the hearing, it was stated by witnesses that the man had acquired the disease one year before he became friendly with the woman. He had been under treatment, but had discontinued it before the physician had declared him cured. The judge laid special stress on this point, saying that every man knew that he must be "cured" —as that term is applied—before entering into sexual relations. By knowingly neglecting this fundamental precaution, the defendant had committed a serious offense; he was ordered to pay twenty million kronen ($300) damages and another $300 for the costs of medical treatment. An appeal against this judgment was dismissed by the higher court. Both medical and daily papers commented favorably on the incident; one pointed out that this judgment will materially help the police to secure statutes making the treatment of venereal disease compulsory. In the new parliament, elected a few days ago, there will be many in favor of this movement.

The Dangers of Domestic Electricity

The ministry for education has issued an order requiring teachers in public schools to give special instruction to their pupils on the dangers involved by the use of electricity in the household. A series of lectures on this subject was delivered to the teachers by Prof. L. Jellinek. He pointed out that it is a mistake to regard only high voltage currents as dangerous. In handling electric lamps or switches, people often receive a slight shock and pay no attention to it. But under specially unfavorable conditions, such a shock may even prove fatal. If the person happens to be standing on a good electric conductor (a wet concrete floor, an iron grating, damp earth) a current of only 200 volts may cause serious harm. Simultaneous contact with an electric cable or lamp and a water pipe or gas pipe is most dangerous. Children should be warned especially against using tools or instruments on electric fixtures, and against touching any electric appliance with wet hands (bathroom). Lantern slides were used to illustrate the lectures, and these slides will also be used in the schools.

Hospital Statistics

The official report of the board of health gives the number of medical homes and hospitals in this country, in 1921, as 284, of which only eighty-six were public institutions; the rest were private, but not necessarily operated for profit. The number of beds available was 38,996, of which only 12,062 were in the private homes. The medical staff in the eighty-four public hospitals consisted of 1,159 physicians, and in the private institutions only 492: an average of twenty-three beds to each physician in the public and twenty-seven in the private hospitals. The number of nurses employed was 6,555 (4,677 public, and 1,878 private) or one for each six beds in the public hospitals, as compared with one to seven in the private hospitals. The number of patients in that year was 309,612, of whom only 82,608 were treated in the private institutes. Among other interesting notes there are a few words about anthrax in Austria. In 1919, only one case was reported and treated in hospital. The year 1920 was entirely free from this disease. In 1921, eight cases were seen, with three deaths; in 1922, eight cases with one death, and in the first half of 1923, one case was reported and verified, and one suspicious case was still under observation. Nearly all these cases were observed in one district in upper Austria among butchers who acquired the disease by handling infected animals.

Graduations in Vienna in 1922-1923

A report from the Vienna University gives some interesting figures on the number of graduates in medicine. In the year 1922-1923 (October to July), out of 868 graduations, 485 students obtained the diploma of M.D., 254 in the winter, and 231 in the summer term. Of these, forty-eight were women. Two hundred and eleven had signed a written obligation not to practice in the Austrian Republic, under the rules of the university, which allow foreign students to graduate only on this condition. Of the remaining 274 medical graduates, only 58 per cent. were of Austrian birth, the remainder having obtained Austrian citizenship before entering the medical course. This means that of the total graduates of one year, only 33 per cent. are Austrian born, and 67 per cent. are citizens of the necessary states or foreign born. These figures indicate the importance of the Vienna University to the eastern and southern part of Europe.

Discussion on Insulin

The recent meeting of the Vienna Medical Society was devoted to the discussion of insulin. Acting on an invitation by the insulin committee of Toronto, Drs. Pollak and Falta have taken up the study of and the experiments with this substance in Vienna. The remedy is manufactured in the laboratory of the Vienna Pharmacologic Institute, and is standardized according to the Toronto unit, that amount which depresses the blood glycogen level of a rabbit of 2 kg. to 0.45 mg. per thousand cubic centimeters. The clinical unit used in several other places is about one third of this unit, but is not much in favor with research workers. Dr. Pollak stated that the indications for the use of insulin may be summarized under the following points: coma, and the precomatose conditions which are little influenced by sodium bicarbonate; surgical complications, and refractory cases. A relative indication is offered in cases in which a protein-poor diet has good effect; but this diet cannot be continued for long. The idea is to keep the patient sugar free for a week, at least, so as to give the insulin-producing mechanism a chance to recover its function. Exact control of blood and urine is paramount at first; later the urine may be examined daily, the blood not so often. This makes treatment at home more feasible. Dr. Pollak has had under control a series of twenty severe cases, and Dr. Falta another series. The latter also reported his observations, which coincide, as to favorable effects, with those of all other workers. He too recommended its use in grave cases with acidosis, and septic and gangrenous symptoms, while dietetic measures often suffice in slighter cases. The high price of the remedy is a serious drawback. Public contributions for a large fund have been urged, to enable the public hospitals to obtain a sufficient quantity of the substance for the treatment of numerous patients. In the discussion that followed the two reports, all were unanimous that the importance of the new remedy cannot be overestimated.

An Outbreak of Typhoid

In illustration of the rarity of typhoid in this city since the regulation of the water supply, it is worthy of note that the board of health has found it necessary to inform the public of a small outbreak in October, which since has been subdued. All cases (twenty-five altogether) were traced to a foreign source, and not a single patient was a Vienna inhabitant; all had acquired the infection outside the city. While in previous years the morbidity and mortality from this source was appalling, and even fifty years ago more than

1,000 persons were infected each year, since 1890 there have been only about ten or twelve cases each year; even in war time Vienna was comparatively free from typhoid, as a result of the supply of absolutely unimpeachable water in abundant quantity throughout the city.

PARIS

(From Our Regular Correspondent)

Nov. 9, 1923.

Vital Statistics

The accompanying table gives the vital statistics for France during the first six months of the current year, together with the statistics for the corresponding six months of 1922.

Vital Statistics for January-June, 1923

	1923	1922
Births	395,863	396,726
Deaths	352,239	387,681
Excess of births over deaths	43,624	9,045
Marriages	176,114	193,454
Divorces	11,965	14,305

The population of France increased, during the first six months of 1923, by 43,624, a low figure, but sensibly higher than that of the corresponding period of 1922, which was only 9,045. This improvement is due solely to the decrease in the number of deaths; the births have actually decreased. The number of marriages shows a sharp decline; there were 17,340 fewer marriages in 1923 than in 1922. The divorces, however, decreased by 2,340. The record for Paris, during the first six months of 1923, was: 30,154 births, 25,778 deaths, 18,320 marriages and 2,275 divorces.

Responsibility for Operation Performed Without Consent of the Patient

A recent decision of the Court of Paris clears up some points with regard to the responsibility of a surgeon in case of an operation performed without the consent of the patient but which appeared necessary during the course of another intervention to which the patient had given consent.

As a general principle, it is true that consent of the patient must be secured before every operation; but a person who, after allowing himself to be examined by a surgeon, permits the surgeon to give him an anesthetic and thus voluntarily submits to an operation which is supposedly necessary to free him of the pain of which he complains, has no cause for action against the surgeon who, on account of cysts discovered during the course of the primary operation, decides on a secondary operation, which, in his judgment, is indispensable.

The court therefore dismissed the complaint of a woman who alleged, but furnished no proof, that a practitioner, after assuring her that only a slight operation was necessary, had, in opposition to her wishes and without apprising either her or her husband, performed an operation that deprived her of the hope of having children. The court held that it is not the duty of the courts to pass on the indications for or the effectiveness of a given surgical operation, and that it is sufficient to establish that the surgeon (whose good faith is not questioned) has conformed to the doctrines professed by the leaders in his profession, and that the technic employed was free from negligence.

Malaria in Syria

M. Pierre Even, member of the chamber of deputies, has requested the minister of war to inform him whether it is true that in Syria the army medical service administers to the troops of occupation prophylactic doses of quinin to ward off malarial attacks, and has called his attention to the enormous expense it has entailed to supply with quinin first 75,000, then 45,000, and finally 30,000 men. M. Even inquired whether or not prescriptions requiring the appropriation of such immense sums are justified by the existence of a wide incidence of malaria that is scientifically proved. The minister of war replied that the wide extent of sickness due to malaria, among the troops of the Army of the Levant, had necessitated the organization of a systematic campaign against malaria, since it had been found that very few regions of Cilicia in Syria are free from endemic foci. Preventive cinchonization, therefore, has been and still is employed, in principle, from April 1 to December 1, simultaneously with other procedures usually instituted in any campaign against malaria.

Higher Instruction in Cookery

Under the patronage of the undersecretary of state for technical instruction, the Société scientifique d'hygiène alimentaire has organized a course of higher instruction in cookery. The instruction will be given by Dr. Hemmerdinger, agrégé professor of the University of Paris; Dr. Henri Labbé, agrégé professor of the medical faculty of the university; M. Martel, doctor of sciences and director of the veterinary services of the prefecture of police, and others. Alimentary hygiene, rational cookery, purchase of foodstuffs, and dietetics are among the subjects to be taken up.

The Radio in Sanatoriums

Dr. Mourier, general director of the Assistance publique, desirous of providing some form of entertainment for the patients, has had a radio outfit installed in the antituberculosis sanatorium of Augicourt, at San Salvador and at Berck.

A Monument to Professor Monprofit

In the gardens of the School of Medicine and Pharmacy of Angers, a monument has been erected to Dr. Monprofit, who for many years was the head of the surgical clinic in that school. He had also been mayor of Angers, deputy from the department of Maine-et-Loire, and corresponding member of the Academy of Medicine. Professor Hartmann of Paris presided at the ceremonies.

Bestowal of Medallion on Dr. C. Walther

The pupils and friends of Dr. C. Walther, meeting recently in the Hôpital de la Pitié, presented him with a medallion in memory of his long period of activity, which has recently ended with his retirement. In attendance at the ceremonies were not only colleagues from Paris, Professors Pierre Marie, Chauffard, and de Lapersonne, but also surgeons from the provinces and from foreign countries: Professor Forgue of Montpellier, Dr. Témoin of Bourges, the Belgian surgeon Wilhems, and others.

A French Dispensary for Earthquake Sufferers

The medical mission of the government of French Indo-China has established at Tokyo a dispensary for earthquake sufferers. In his address at the dedicatory ceremonies, the French ambassador, M. Paul Claudel, stated that the French government had founded this dispensary in recognition of the services rendered, during the war, by the Japanese medical mission.

Necrology

From Rouen the death of Dr. Charles Bataille, hospital surgeon and professor at the school of medicine of that city, is announced.

Dr. Emile Tillot, since 1886 a corresponding member of the Academy of Medicine, has died at the age of 95.

Personal

Two new professors for the Faculté de médecine of Paris have been elected: Dr. Georges Guillain in place of Pierre Marie, who has retired, and Dr. J. A. Sicard, in place of Rénon, deceased.

MEXICO CITY

(From Our Regular Correspondent)

Oct. 27, 1923.

New Neuropsychiatric Society

The physicians of the National Insane Asylum, at a recent meeting, organized the Mexican Society of Neuropathology and Psychiatry. Dr. Nicholás Martinez, director of the institution, was appointed president of the society and Dr. Norma, secretary.

New Hospital

Through the generosity of Lady Cowdry, who donated for this purpose £100,000 (approximately $450,000), there will soon be opened in one of the most select districts of Mexico City a new hospital for indigent patients. In this institution, furnished with the latest equipment, poor people will receive medical assistance free of charge. A moderate fee will be collected from those able to pay, whether British subjects or of other nationalities. The hospital was opened, November 11, the fifth anniversary of the armistice. The institution will be called "Lady Cowdry Sanatorium," after its benefactress, who is the wife of one of the pioneer oil men in Mexico, Sir Wetman D. Pierson.

Personal

Dr. Jose Terres, a prominent Mexican physician and a professor in the medical school, has been seriously ill for several months.——Dr. Alfredo Caturegli, former Mexican minister to Germany, has been appointed chief of the public assistance bureau.——After spending more than a year in the United States and several months in Europe, studying public health science, Dr. Salvador Bermudez has returned to this country. The International Health Board, of New York City, had granted him a fellowship at Johns Hopkins School of Hygiene and Public Health, at which institution he obtained a P.H.D.——As Dr. Jesus Arroyo declined the position of editor of the *Gaceta Médica de Mexico,* the organ of the Mexican Academy of Medicine, a new election was held, at which the former editor, Dr. A. Brioso Vasconcelos, was reelected for two years.

BERLIN

(From Our Regular Correspondent)

Nov. 3, 1923.

New Tariff Schedule for Berlin Physicians

The commission of the Berlin "Chamber of Physicians" (*Aerztekammer)* and the Physicians League of Greater Berlin (*Aerztebund)* has just published a new tariff schedule for the use of Berlin physicians, who, in the face of the rapid depreciation of the mark, are endeavoring to establish medical fees on a firm basis. As the new schedule applies also to foreigners, it would seem to be a matter of general interest:

1. Medical fees shall be based on the tariff schedule that was in force just before the outbreak of the war, as expressed in gold marks. For the conversion of gold marks into paper marks the current exchange rate shall be employed.
2. The prewar fees in vogue in Berlin shall be: for an ordinary consultation at regular office hours, from 2 to 5 marks; for an ordinary call, from 3 to 10 marks. The lower fees are charged persons in moderate circumstances.
3. The fees for other forms of medical service shall be on the same basis.
4. In the application of fees, due consideration should be given to the changed circumstances of various classes of the population.
5. Special consideration should be given to patients who are suffering from financial difficulties. Patients in especially good circumstances may be charged more than the usual fees.
6. As a rule, immediate payment should be demanded. In the case of house practice, weekly settlements may be made, if daily payment does not seem feasible. Accounts should be adjusted at least once a week, even though the treatment should continue longer. Physicians are urged not to accept checks in payment of accounts.
7. Foreigners should be charged the full prewar fees in gold marks.
8. Foreigners who have taken up their residence in Germany and whose income is in German money should be charged the same fees as Germans.

Award of the Nobel Prize in Medicine

Professor Meyerhof, who has been awarded half of the Nobel prize in medicine for 1923, is 35 years of age. For a number of years he has been a privatdozent in the University of Kiel and first assistant in the physiologic institute of which Professor Höber is the director. The prize was awarded for work on the physiology of muscles. His investigations, carried out with frogs, concerned the relation between the chemical and the mechanical processes in muscle activity, the "laws" that govern the chemical reactions, the performance of work and the heat production of the muscle. Meyerhof was able to prove that only one third of the lactic acid formed during the work performance of muscle cells is decomposed and converted into heat; the other two thirds is changed back into muscle glycogen.

Death of Karewski

Professor Karewski, director of the surgical department of the Jewish Hospital in Berlin, died, October 31. He had been for many years director of the surgical policlinic of this hospital, but did not become director of the clinical department until a few years ago, his predecessor, Professor Israel, having retained this post until considerably past his seventieth year. Karewski was 60 years of age when he finally reached the coveted goal, but he was not destined to live many years to enjoy his honors. He spent his whole life in the service of the Jewish Hospital, having started work in the hospital as assistant in 1882. Karewski had begun to do research work while still a student. In 1882, he was awarded a prize for research on "The Influence of Puerperal Secretions on the Animal Organism from the Basis of Experimental Research." However, from 1883 on, his research work was entirely in the field of surgery. Since 1890, his publications have been almost confined to the surgery of children's diseases. In 1894, he published (Enke, Stuttgart) a textbook on the surgical diseases of childhood. Since that date, he has written many articles that deal entirely with the clinical aspects of surgery and open no new paths. Karewski was in much demand as a consultant. Many years ago, he contracted an incipient tuberculosis of the larynx. For nearly a year, he took a rest cure, the so-called *Schweigekur* (being prohibited from even speaking), spending part of the enforced vacation in the South, and recovered. His death was due to a malignant tumor.

Marriages

Benjamin Landis Elliott, Kansas City, Mo., to Miss Helen D. Buell of Madison, Wis., October 26.

Monsey E. Mease, Sandy Level, Va., to Miss Annie Edwards of Lynchburg, October 13.

Albert S. Priddy, Madison Heights, Va., to Mrs. Mamie H. Mitchell of Alexandria, October 20.

Robert Wilson Selby, Middleburg, Va., to Miss Mae Diller of Rehoboth Church, November 1.

Clifford F. Stuhlmueller, St. Louis, to Miss Marie Baum, of Hamilton, Ohio, November 27.

Marshall L. Boyle, Jr., Richmond, Va., to Miss Elise Leckie of Lynchburg, October 20.

Robert Minor Baker to Mrs. Ruby Gornto Jones, both of Jacksonville, Fla., October 18.

Kenneth Bulkley to Mrs. Arthur Gosling, both of Minneapolis, in November.

Wilford F. Widen, Minneapolis, to Miss Ruth Martin of St. Paul, September 8.

Harris R. Sutton to Miss Clara Stock, both of Hoffman, Minn., in October.

Deaths

Warren A. Dennis ⊕ St. Paul; University of Minnesota Medical School, Minneapolis, 1896; associate professor of surgery at his alma mater; member and at one time secretary of the Western Surgical Association; veteran of the Spanish-American and World wars; formerly on the staffs of the State Hospital for Indigent, Crippled and Deformed Children; the City and County, St. Luke's and St. Joseph's hospitals, and the Miller Hospital, where he died, November 8, of pneumonia, aged 53.

Joseph Davis Craig ⊕ Albany, N. Y.; Albany Medical College, 1884; curator of the museum, and for thirty years professor of anatomy, at his alma mater; member of the American Association of Anatomists; formerly president of the Albany County Medical Society; on the staff of the Albany Hospital since 1894; city health officer 1900-1914; aged 67; died, November 5.

John Raymond Vincent Wolfe, Norristown, Pa.; Jefferson Medical College of Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; served in the M. C., U. S. Army, during the World War; on the staff of the Montgomery Hospital; aged 42; died, November 17, following an appendectomy.

Charles Franklin Smith ⊕ Muskegon, Mich.; Baltimore (Md.) Medical College, 1898; director of the department of health and welfare; formerly city health officer; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; was found dead in his home, November 9.

Antoine E. Bonneville, Alpena, Mich.; University of Paris, France, 1875; Medical Department of the University of the City of New York, 1891; member of the Michigan State Medical Society; aged 68; died, November 3, of injuries received in an automobile accident.

Harry Rabe Sharpe ⊕ Manchester, Conn.; University of Vermont College of Medicine, Burlington, 1900; member of the school board; aged 44; died, November 12, at the Manchester Memorial Hospital, South Manchester, of embolism following an appendectomy.

Charles Henry Esdorn, Walterboro, S. C.; Medical College of the State of South Carolina, Charleston, 1901; member of the South Carolina Medical Association; past president of the Colleton County Medical Society; aged 43; died, November 13, of heart disease.

Elgin Orange Bingham, Niagara Falls, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1892; acting assistant surgeon, U. S. Public Health Service, on duty at the U. S. Immigration Station; aged 56; died, October 20, of mitral regurgitation.

Henry Samuel Myers, Forks of Buffalo, Va.; Medical College of Virginia, Richmond, 1892; member of the Medical Society of Virginia; formerly state senator; aged 56; died, November 2, of a self-inflicted bullet wound while suffering from ill health.

Jacob Lang, Milwaukee; University of Leipzig, Germany, 1877; member of the State Medical Society of Wisconsin; formerly on the staff of the Passavant, now the Milwaukee, Hospital; aged 85; died, November 10, of senility.

Albert John Adams Hamilton ⊕ Boston; University of Pennsylvania School of Medicine, Philadelphia, 1906; formerly on the staff of the Carney Hospital; aged 44; was found dead, November 7, of cerebral hemorrhage.

Henry Edward Reece ⊕ Lawrence, Kan.; University Medical College of Kansas City, Mo., 1900; served in the M. C., U. S. Army, in France, during the World War; aged 46; died suddenly, November 9, of mitral regurgitation.

Norman Michael Grace, Arnprior, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1915; served during the World War with the Canadian Army Medical Corps; aged 30; died, October 21, of pneumonia.

John James Sullivan, Philadelphia; Jefferson Medical College of Philadelphia, 1923; served during the World War; on the staff of St. Agnes' Hospital, where he died, November 11, of pulmonary tuberculosis, aged 29.

James Wiley Knowlton, Birmingham, Ala.; Vanderbilt University Medical Department, Nashville, Tenn., 1883; member of the Medical Association of the State of Alabama; aged 66; died, November 4, of angina pectoris.

William Martin Reed ⊕ Kansas City, Mo.; Louisville (Ky.) Medical College, 1896; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 57; died, November 2, of heart disease and influenza.

Percival Orison Hopkins ⊕ Bingham, Me.; Medical School of Maine, Portland, 1901; served in the M. C., U. S. Army, during the World War; aged 48; died, October 11, at the Somerset Hospital, Skowhegan.

James Dix Turner, Chapmanville, W. Va.; University of the South Medical Department, Sewanee, Tenn., 1900; aged 49; was killed, November 12, when the automobile in which he was driving overturned.

Frank Godfrey Hornung, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1891; member of the Ohio State Medical Society; aged 75; died, November 6, at the Mercy Hospital, following a long illness.

Carl Wood Hoopes, Marysville, Ohio; Starling Medical College, Columbus, 1905; member of the Ohio State Medical Association; for four years city health commissioner; aged 43; died, November 9.

William Perry Robinson, Haverhill, Mass.; University of Vermont College of Medicine, Burlington, 1874; member of the Massachusetts Medical Society; aged 73; died, October 30, at the Hale Hospital.

Stoughton R. Wheeler, East Bloomfield, N. Y.; University of Buffalo (N. Y.) Department of Medicine, 1886; member of the Medical Society of the State of New York; aged 62; died in October.

Guy Jenkins Mulvane ⊕ Topeka, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; on the staff of Christ's Hospital; aged 73; died, November 4, of mitral regurgitation.

Alpheus Wood Disosway, Columbia, N. C.; University of Maryland School of Medicine, Baltimore, 1905; aged 41; died at a hospital in Washington, as the result of bullet wounds, November 2.

Samuel Duff Hartman ⊕ Tippecanoe City, Ohio; University of Michigan Medical School, Ann Arbor, 1872; Civil War veteran; aged 77; died, November 4, following an operation.

Joseph M. Swope, Arenzville, Ill.; University of Louisville (Ky.) Medical Department, 1880; member of the Illinois State Medical Society; aged 69; died, November 11, of heart disease.

Emilie Louisa Gnekow, Stockton, Calif.; Northwestern University Woman's Medical School, Chicago, 1901; member of the California Medical Association; aged 51; died, October 4.

John Clarkson Jay, New York; Medical Department of Columbia College, New York, 1865; Civil War veteran; aged 79; died, November 7, of heart disease, following an operation.

Henry Richard Pearce, Battle Creek, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1897; member of the Michigan State Medical Society; aged 57; died in October.

J. P. Moon, Cordova, Ala.; Chattanooga (Tenn.) Medical College, 1899; member of the Medical Association of the State of Alabama; aged 49; was shot and killed, November 5.

John Hewitt Dawley, Laona, Wis.; Western Reserve University School of Medicine, Cleveland, 1879; formerly county judge; aged 69; died, November 10, following a long illness.

William Elwood Powell, Philadelphia; Medico-Chirurgical College of Philadelphia, 1894; member of the Medical Society of the State of Pennsylvania; aged 67; died, November 5.

Joseph C. Hunter, Antelope, Mont.; University of Pennsylvania School of Medicine, Philadelphia, 1873; aged 75; died in October, following an operation for carcinoma.

Charles N. Howard, Sr., Cusseta, Ga.; University of Georgia Medical Department, Augusta, 1867; Civil War veteran; aged 79; died, November 5, of heart disease.

Joseph Graves Priestley, Lockeford, Calif.; Missouri Medical College, St. Louis, 1880; aged 66; was instantly killed, November 9, in an automobile accident at Livermore.

Samuel Latimer Phillips, Savannah, Ga.; University of Maryland School of Medicine, Baltimore, 1885; aged 69; was found dead, November 2, of heart disease.

Olin Joseph Lawry, Redding, Calif.; Rush Medical College, Chicago, 1875; Civil War veteran; at one time mayor of Redding; aged 79; died, November 6, of senility.

Walter A. Guidinger ⊕ Long Beach, Calif.; Chicago College of Medicine and Surgery, 1907; formerly a practitioner in Nebraska; aged 42; died, September 18.

⊕ Indicates "Fellow" of the American Medical Association.

Albert Ernest Finley, Elgin, Manitoba, Canada; University Manitoba Faculty of Medicine, Winnipeg, 1904; aged 53; died, October 4, of cerebral hemorrhage.

George G. Topping, Denver; Jefferson Medical College of Philadelphia, 1872; formerly a practitioner in Ohio; aged 79; died, recently, of cerebral hemorrhage.

Henry B. Erdhaus ⊕ St. Louis; Barnes Medical College, St. Louis, 1906; aged 59; died, October 29, following an operation for intestinal obstruction.

W. M. Brooks, Stanberry, Mo.; American Medical College, St. Louis, 1878; member of the Missouri State Medical Association; aged 75; died recently.

Charles W. Cornelius, Portland, Ore.; University of Oregon Medical School, Portland, 1889; formerly county coroner; died, November 1, of neuritis.

Joseph Frederick Berg, Plainfield, N. J.; Jefferson Medical College of Philadelphia, 1862; Civil War veteran; aged 83; died, November 3, of senility.

Claude A. Roberts ⊕ Solomon, Kan.; St. Louis (Mo.) College of Physicians and Surgeons, 1900; aged 52; died, November 13, of pernicious anemia.

Charles Clemenceau Fremont Nieschang ⊕ Fort Wayne, Ind.; Fort Wayne College of Medicine, 1882; aged 63; died, November 4, of pancreatitis.

Luther B. Bushong ⊕ Topeka, Kan.; University Medical College of Kansas City, Mo., 1897; aged 53; died, November 15, of cerebral hemorrhage.

Enoch Blackburn Ketcherside, Yuma, Ariz.; University of Tennessee College of Medicine, Memphis, 1884; aged 77; died, October 25, of senility.

Walter M. Ford, Mount Auburn, Ind.; University of Louisville (Ky.) Medical Department, 1877; aged 71; died, November 7, of heart disease.

John Z. Ferrell, Dallas, Texas; University of Georgia Medical Department, Augusta, 1881; aged 64; died, October 27, of pneumonia.

William M. Stewart, Terrell, Texas; University of Louisville (Ky.) Medical Department, 1881; aged 73; died, November 9, of pneumonia.

James Olland McCorrison, North Berwick, Maine; Medical School of Maine, Portland, 1878; aged 72; died, October 12, of diabetes mellitus.

Fred A. Hanson, Burnside, Ill.; Chicago College of Medicine and Surgery, 1909; aged 44; died, November 6, of pernicious anemia.

June Abbott, Batesville, Ind.; Eclectic Medical Institute, Cincinnati, 1872; Civil War veteran; aged 79; died, November 4, of senility.

W. H. H. Stewart, Atlanta, Ga.; University of Georgia Medical Department, Augusta, 1873; aged 83; died, November 11, of senility.

Hugh C. Jones, Searcy, Ark. (licensed, Arkansas, 1903); formerly member of the state legislature; aged 75; died, November 5.

Joseph Addison Trimble, Nashville, Tenn.; Vanderbilt University Medical Department, Nashville, 1881; aged 67; died, November 14.

Mary A. Baird, Albany, Ind.; Eclectic College of Physicians and Surgeons, Indianapolis, 1893; aged 66; died, November 3.

Joseph Edwards Midgley, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1886; aged 60; died recently, at Beaumaris.

John Sellman Edwards, Erin, Tenn.; Vanderbilt University Medical Department, 1876; aged 72; died, November 8, of senility.

Frank W. Johnson, Cincinnati; Columbus (Ohio) Medical College, 1892; aged 57; died, November 10, following a long illness.

William Eugene Putnam ⊕ Whiting, Ind.; Rush Medical College, Chicago, 1889; aged 62; died suddenly, November 19.

J. M. Graves, Dycusburg, Ky.; Kentucky School of Medicine, Louisville, 1877; aged 74; died, November 3, of senility.

George T. Gray, Lyons, Ga.; University of Georgia Medical Department, Augusta, 1888; aged 62; died, November 5.

John T. Dickey, Howard, Ga.; Louisville (Ky.) Medical College, 1872; aged 75; died, November 6, of senility.

E. A. Swepston, Myrtle Springs, Texas (years of practice); aged 71; died, November 2.

Correspondence

"PROTEIN AND PELLAGRA"

To the Editor:—I regret that only just now have I had the opportunity of making myself acquainted with Dr. Goldberger's reply to me (THE JOURNAL, June 23, 1923, p. 1866). Dr. Goldberger writes:

"In this table as Hindhede presents it, the consumption of the foods of his 'Group 1' in pellagrous households with two or more cases is given in the rate at 675 gm.; it should be 583 gm. per person, so that this represents not 2,800 but 2,100 calories, and therefore 64 per cent. and not (as Hindhede states) 90 per cent. 'of the nourishment' of the members of such households."

Yes, there is a typographical error—my own oversight; 675 should be 575 (351 + 9 + 5 + 6 + 144 + 32 + 22 + 6). But the calories are quite correct (*Pub. Health Rep.* **35**:675 and 679 [March 19] 1920). Under the vitamin free "Group 1" I class:

	Calories
Flour, bread, cakes, etc	1,840
Sugar, syrup, etc	217
Salt pork, lard, etc	745
	2,802

These are Dr. Goldberger's own figures. How he arrives at 2,100 I cannot imagine.

Dr. Goldberger writes also: "In the light of these studies it seems to us possible that the protein of 'whole bread' and of 'fruits, vegetables and potatoes,' even though small in amount, may be adequate in itself or, more likely, may serve as an efficient supplement." I am much surprised. This is what I myself might write, word for word. But I am unable to understand that it is the same Dr. Goldberger who wrote: "Relation of pellagra incidence to variations in supply of 'animal protein' foods" (*Pub. Health Rep.* **35**:681 [March 19] 1920) and who concluded by saying (p. 707):

"The indications afforded by this study clearly point to an increase in the availability of milk, particularly by increasing cow ownership, and of fresh meat by all-year-round meat markets as important practical measures of prevention and control in communities of the character studied." Dr. Goldberger in this place did not recommend "whole bread, fruits, vegetables and potatoes."

If the colleges would take the trouble to read the report mentioned, they surely would find that Dr. Goldberger has changed his mind, which of course can only gratify me. I hope that McCollum and others have done the same.

M. HINDHEDE, M.S., Copenhagen, Denmark.

LONG LIFE IN THE SOUTHERN MOUNTAINS

To the Editor:—Are the southern mountains a healthful place in which to live? Much has been said and written about poverty, poor medical care, lack of proper attention to childhood, and various other matters classed as hardships which people who live in the remote parts of the mountains have to endure. But in contrast to these things one should dwell on the advantages which life in the mountains has to offer. There are hardships in places, but there are also rewards worth living for: pure air, excellent spring water, the simple life, absence of noises that infest our cities, neighbors with whom one can get acquainted, friends who will help in time of sickness and bring comfort in days of sorrow, gorgeous sunsets and glorious sunrises undimmed by smoke from flues and factory chimneys, scenery whose lights and shadows vary through each hour of the day, an opportunity to [illegible] bed early and sleep through all the [illegible] fear o [illegible] laries, freedom from the restraint o [illegible] us ci [illegible] regulations, and the feeling that one is free to go and come as one chooses.

During a recent inquiry among seventy-five students from the mountain country of Kentucky, West Virginia, Virginia, North Carolina and Tennessee concerning the number of persons personally known to them whose ages are or were at the time of their death above 90, forty-four people were reported with ages varying from 91 to 110 years, and five over that age, many of them living now and in excellent health.

Of twenty-two persons reported over 100 years old, sixteen were from the Kentucky mountains. Seven of these were negroes. When it is remembered that in most parts of the Kentucky mountains there are exceedingly few negroes, some counties having none at all, the proportion of negro centenarians appears unusually large. Negroes, as a rule, live the most simple kind of life, eat the simplest kinds of food, have the most unpretentious living quarters, receive the minimum medical attention, and are farthest behind in the struggle for large fortunes.

Is it not true that those who live thus and do the hardest kinds of manual labor are destined to reach the ripest old age?

John F. Smith, Berea, Ky.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INCREASING THE COAGULABILITY OF THE BLOOD

To the Editor:—Before every tonsil operation on an adult, I make a test to ascertain the coagulation time. If the blood coagulates in a time over eight minutes, I give a dose or two of some of the agents that are prepared for hypodermic use to increase the coagulability of the blood, such as thromboplastin or similar substances, and I think that I have seen this decrease the coagulation time. On the whole, however, these things have been disappointing; and after hemorrhage has begun, so far as my observation has gone, they are perfectly useless. Please let me know the best means known to increase the coagulability of the blood.

A. J. Kemp, M.D., Miami, Fla.

Answer.—There is no completely efficient method to increase the coagulability of the blood when low. This is because delayed clotting may be due to deficiency in any one of the several essential factors in clot formation; and the proper therapy consists in restoring the missing factor, or removing the inhibiting influence. Thus, in diseases in which there is a blood platelet deficiency, as in certain forms of purpura, introduction of blood platelets by means of blood transfusion is probably the most efficient restorative. When there is a calcium deficit, intravenous injection of calcium salts would be required. Brain lipoid and solution brain extract which are described in New and Nonofficial Remedies rank quite high as accelerators of clotting in experimental observations on animals. That it may fail under certain abnormal conditions is to be expected. In jaundice, for instance, in which condition the bile seems to interfere with the conversion of fibrinogen into fibrin even in the presence of an abundance of thrombin, it is probably useless.

LIQUID PETROLATUM AS A LAXATIVE

To the Editor:—Does liquid petrolatum, when used as a laxative, tend to protect the food against the action of the digestive fluids, or why do certain persons who use it daily lose weight? Please do not publish my name.

M.D., Ohio.

Answer.—Liquid petrolatum should not be put into a category with animal or vegetable fats, as they have nothing in common except certain physical properties and solubilities. Liquid petrolatum is bland, odorless, tasteless, colorless and indigestible, as well as insusceptible of decomposition by bacteria; hence it cannot become rancid. It is not absorbed; therefore it cannot produce poisoning in any dose. A pint of liquid petrolatum has been given in a few hours without untoward results (Fantus, Bernard: Useful Cathartics, Chicago, American Medical Association, 1920, p. 31). The action of such a substance on digestion will obviously depend in part on the dose used. In ordinary quantities it does not seriously impair the alimentary efficiency. Like all laxatives used in very large quantities, liquid petrolatum may diminish the degree of utilization of food by promoting evacuation before the functions of digestion and absorption can be entirely completed. It is conceivable that in this way an occasional person might lose weight through failure to absorb an adequate diet. This presumably is at most an unusual outcome. Fantus has pointed out that as the liquid petrolatum, when taken after meals, is likely to lie heavy on the stomach and produce other gastric distress—in Bastedo's investigation 20 per cent. complained of nausea or tendency to repeat—it is best to take it in such a way that it will interfere least with gastric digestion. This is secured by giving a dose, from 15 to 60 c.c., at bedtime, or else administering 15 c.c. one hour before each meal.

In reporting on a proprietary brand of liquid petrolatum widely exploited to the public (Report Council Pharm. & Chem., 1918, p. 72), the Council on Pharmacy and Chemistry warned that constipation should be treated by dietary and hygienic means as evacuants are but temporary measures. It further cautioned that liquid petrolatum is medicinal: it modifies greatly the intestinal flora; it acts as a lubricant and emollient; it modifies the absorptive powers of the intestinal mucous membrane; it is capable of influencing the digestion of fats; and, in short, liquid petrolatum is a drug, the indiscriminate and excessive use of which should not be encouraged.

SPAHLINGER TREATMENT FOR TUBERCULOSIS

To the Editor:—Can you give me information on tuberculin treatment by Henry Spahlinger, Swiss bacteriologist?

Stephen V. Mountain, M.D., Olean, N. Y.

Answer.—A note appeared on the Spahlinger treatment in The Journal, Oct. 7, 1922, page 1263. Since this was published, the nature of the products has been made public, and reports on them have been published in medical journals. The treatment, however, is still deemed to be in the experimental stage.

Henry Spahlinger, a resident of Geneva, received medical training, but took his degree in law. Later he abandoned law for research work.

The Spahlinger treatment, as revealed at present, makes use of vaccine and serum therapy. The theory from which the treatment is evolved is that the tubercle bacillus emits different toxins under varying conditions of temperature, environment, etc. Many of these are claimed to be isolated as either exotoxins or endotoxins. The time required to make a vaccine is from nine to ten months, and the vaccines—of which there are said to be about twenty—are used for prophylaxis, for treatment of the milder cases of tuberculosis, and for the production of the various serums, which are in turn employed in the treatment of the more severe cases of tuberculosis. Each isolated toxin is injected into a separate horse until immunity results. The serums, varying in degree of virulence according to the toxins used for their production, are then mixed to form a complete serum—a process requiring about four years for completion. Owing to extreme financial difficulties, Spahlinger is said to have none of the complete serum at the present time.

Recently reports appeared in British medical journals stating that the British ministry of health is prepared actively to encourage the experimental trial of the Spahlinger preparations under scientific supervision as soon as a sufficient supply of the remedy is available. The British Red Cross has gone so far as to vote a sum of £30,000 to enable Spahlinger to work on a larger scale so that the treatment may be tried in England.

The reports in regard to the efficacy of the preparations which have appeared in the British medical journals are conflicting, and the Red Cross organization has made it clear that the products are in the experimental stage.

The Medical Expert Witness.—The physician as an expert witness in court should be as scrupulously careful, honest and scientific as he would be if he were expressing his opinion before a body of medical men. Very many expert opinions that have been given by physicians in court would be ridiculed and hooted as scientifically foolish at a medical meeting. Too many medical men as expert witnesses have the wrong idea that the examining counsel is a fool or that the jury and the court are simpletons. —Geo. W. Whiteside, *New York State J. M.* **23**:74 (Feb.) 1923.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

COLORADO: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Wilmington, December 11-13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

KENTUCKY: Louisville, December 11. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

LOUISIANA: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: Baltimore, December 11-14. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

NORTH CAROLINA: Chapel Hill, December 4. Sec., Dr. Kemp P. B. Bonner, Raleigh.

NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, December 5-7. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

VIRGINIA: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, Olympia.

WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

PUBLIC HEALTH COURSES IN MEDICAL SCHOOLS

IRA V. HISCOCK
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NEW HAVEN, CONN.

The Council on Medical Education and Hospitals of the American Medical Association publishes each year valuable data regarding medical education in the United States. These reports describe the graduate courses in public health in the few medical schools in which such courses are given (eleven in 1922), but do not aim to furnish information regarding the extent of public health teaching in the regular medical curriculums. The present report, which has been prepared at the request of Prof. C.-E. A. Winslow, chairman of the Committee of the American Public Health Association on Standardization of Public Health Training, is based on a study of the public health courses given to medical undergraduates in fifty-seven Class A medical schools of the United States, as described in the 1922-1923 bulletins of these institutions and supplemented by correspondence. Medical schools that give only the first two years of the course have been omitted. I gratefully acknowledge the cooperation of the officers of the college, who have made this study possible.

It may be stated, at the outset, that the curriculum prescribed by the Association of American Medical Colleges, according to the schedule furnished me by the secretary, calls for from 3,600 to 4,400 hours in four calendar years, distributed as from 900 to 1,100 hours a year and grouped in nine main divisions. The division of hygiene and sanitation is allotted from 3 to 4 per cent. of the total hours, or from 108 to 176 hours for the entire course. This is the smallest allotment of the nine, comparing most closely with the 3.5 to 4.5 per cent. suggested for biochemistry, and the 4 to 5 per cent. each for the two divisions of pharmacology, and obstetrics and gynecology, while general medicine rightly receives the highest allotment of 20 to 26.5 per cent. This amount of time is considerably greater than that specified in the earlier schedule,[1] published in 1922, in which the subject of preventive medicine and public health appeared as a subdivision of pathology and bacteriology and was alloted a minimum of 1.5 per cent. of the total time.

A study of the required public health courses given in the different medical schools of the United States suggests the need for better organization and standardization of these courses, based on sound principles of pedagogy and public health. While a few medical schools give really comprehensive courses in preventive medicine to their medical students, several others apparently fall short even of the minimum standards suggested by the Association of American Medical Colleges. Some of the schools emphasize "the practicing physicians' duties and opportunities in the field of preventive medicine" (Stanford), "in regard to personal and community hygiene and the causes, general nature and control of preventable diseases" (Louisville), and "to stimulate within the mind of the student the public health consciousness, together with practical and scientific methods of applying the same" (Howard). The whole matter of more public health work for medical students has recently been the subject of inquiry in a few institutions, and special committees on curriculum have been appointed to consider the situation.

NUMBER OF COURSES

Most of the medical schools give only one prescribed course in public health to medical students, although eight of the schools have two courses, five have three courses, and two have four courses. Whenever more than one course is given, however, the subject matter and total hours usually correspond to subdivisions of the single courses which are more common. Fourteen institutions offer elective courses in public health, chiefly to fourth year men and often involving practical field work or research. One medical school (Ohio) reports an optional course to sophomore students in personal hygiene, which is taken by about five sixths of the class each year. This institution, among others, also offers special courses in public health to medical students and nurses with advanced standing, and a number of them are taken by the prospective medical students during the preliminary college years. At Columbia, electives are given in practical field work in prenatal, infant, preschool and school groups, and psychiatric work for children; and about one third of the fourth year class availed themselves last year of these elective courses. A large part of the public health aspects of maternity and infancy is carried by the department of obstetrics and pediatrics. Undoubtedly, the interest of the medical student in public health fields will grow as increased opportunity for elective work is given.

SCOPE OF COURSES

The prescribed public health courses given to medical students consist, for the most part, of lectures and demonstrations, although twenty institutions report only lectures, varying in total number from eight in Boston University to 110 in Long Island College Hospital, with a median of thirty-four in Tufts Medical School and the University of Nebraska. One exception should be made to this statement in the case of an institution whose bulletin reports a department of pathology, bacteriology and preventive medicine, but fails to indicate any separate course in preventive medicine. Considering the entire group of medical schools, it is found that the total number of hours given to public health courses ranges from no special course in one school, and eight hours in Boston University as previously indicated, twenty-two hours in Johns Hopkins and twenty-four hours in Ohio, to 149 hours in the University of Georgia, over 150 hours in the University of Buffalo, 156 hours in Syracuse, 160 hours in Western Reserve, and 210 hours in Tulane, with a median of sixty-one hours in the University of Minnesota. Table 1 indicates the type of courses given and the amount of time required for the work.

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[1] Medical Education in the United States, J. A. M. A. 79: 629 (Aug. 19) 1922.

As shown in the table, most of the courses are given in the third or fourth years. Public health courses are given in the second year in eighteen schools, but in ten of them such courses are only preliminary hygiene courses leading to more advanced work in preventive medicine in succeeding years. In the fourteen schools in which more than one public health course is given, the first is usually limited to general hygiene, while later courses deal more particularly with public health and administration. In the Woman's Medical College of Pennsylvania, instruction in hygiene and disease prevention consists in one lecture a week through one semester for each of the four classes. In three universities, Arkansas, Buffalo and Western Reserve, instruction in hygiene and sanitation begins in the sophomore year and extends through the junior and senior years. In the first case, approximately sixteen hours are given to laboratory work, and thirty-two hours to hygiene lectures, while a sanitary survey occupies as much time as is necessary in the senior year. The courses in Buffalo consist of lectures, quizzes, laboratory work and field work, amounting to sixty hours in both the second and third years and thirty hours in the fourth year. In Western Reserve, didactic and field work total forty-eight hours, laboratory, sixty-four hours, and clinical hygiene or observation trips, forty-eight hours. The University of Michigan gives a required hygiene course of three lectures a week to sophomore students in the second semester, and a lecture course in preventive medicine amounting to two hours a week during the first semester of the junior year. One lecture course of twenty-two hours in hygiene and epidemiology is required in the third year at Johns Hopkins, while a thirty-eight hour course, consisting of lectures, conferences, laboratory and field work in preventive medicine and hygiene, is required at Harvard. A course in public health administration, consisting of thirty-two hours of lectures and conferences, is required of fourth year students at Columbia. Students are assigned, in groups of two or three, major topics in the field of preventive medicine, which they work up through study and reading, and report on in detail to the class, sustaining their statements in open discussion with the rest of the class. The course in preventive medicine at Syracuse involves three classroom hours a week during the second semester (forty-eight), and 108 hours of field work given mornings during the last six weeks of the fourth year. Information available for eight medical schools in which the public health courses comprise laboratory and field work as well as lectures indicates that about half of the time is usually spent in lectures.

Table 1.—*Public Health Courses Given in Medical Schools Classified by Year Given, Type of Course, and Total Hours, 1922-1923*

		Type of Courses						Total Hours		
Year Given	Total Schools	Lectures Only	Lectures and Field Work	Lectures and Laboratory	Lectures and Conferences or Quizzes	Lectures, Laboratory and Field Work	Lectures, Conferences, Laboratory and Field Work	Less than 54	54 to 80	Over 80
2............	8	2	1	1	1	2	1	2	4	2
3............	20	8	3	3	0	2	4	6	5	9
4............	14	4*	5*	1	3	0	1	9	2	3
1, 2, 3 and 4.	1	1	0	0	0	0	0	0	0	1
2 and 3......	4	2	1	0	0	1	0	0	3	1
2 and 4......	2	1	1	0	0	0	0	2	0	0
3 and 4......	4	2	2	0	0	0	0	0	3	1
2, 3 and 4....	3	0	0	0	0	2	1	0	1	2
No regular course.....	1	0	0	1	0	0	0	1	0	0
Total.....	57	20	13	6	4	7	7	20	18	19

* Given in the sixth year in the universities of Nebraska and Oregon.

BEST YEAR FOR COURSE

Obviously, each school has its own individual problems to solve, and every one realizes many obstacles which must be confronted in the development of a well rounded program. It is clear that there is at present little uniformity in selection of the year for giving public health courses in different medical schools. This is apparently due to two causes: first, a difference of opinion as to the proper place for such courses, and second, lack of choice, due to the fact that the medical curriculum has been overcrowded and special courses in public health are comparatively new and in some cases have not yet become well established. Time and careful selection of teaching personnel will eventually bring about some adjustment of these problems as the principles of modern medicine become more generally realized. It seems essential at the outset that the first half of the course be designed to equip the physician as a hygienic adviser to the family, competent to deal particularly with the environmental factors that affect health. The second half should deal with the organized community health program and the relation of the physician to the work of official health agencies, infant hygiene, antituberculosis movements, medical supervision of school children and problems of industrial hygiene.

In order that the medical student may approach a comprehensive course in public health with the proper attitude, and consider broadly the complex problems involved, it is most important that he have a solid background with pathology, physiology and medicine as bases. In other words, he should be well equipped. Furthermore, in most of the medical schools at present, the medical student is just entering the wards in his third year. He finds this work more fascinating than attending public health lectures or taking field trips, which he is inclined to look on as outside his realm and so much time taken from what he is likely at this time to consider his real medical activities. It is most important, then, that the utmost care be exercised in arranging the year in which public health courses are given, as well as the particular hours in the day, in order that class and field work may interfere as little as possible with the students' clinical work. The fourth year in the average medical school seems to meet best these conditions, and offers the most satisfactory opportunity for demonstrating the important place of public health in modern medicine.

SANITARY SURVEYS

Practical field work and demonstrations to illustrate the underlying principles of public health are recognized as essential features of the instruction of medical students. Field work includes sanitary surveys in at least six medical schools,[2] in addition to elective work along the same line in a few other cases. These surveys are usually made in the senior year, through cooperation with state and city health departments. Of course, the value of sanitary surveys depends largely on the care given to the collection and analysis of data. If properly supervised and supported, they may benefit communities and students alike; but if performed in a haphazard or perfunctory manner, they are both time-consuming and worthless from an educational standpoint.

NAMES OF COURSES

The names of public health courses in different institutions vary considerably, as shown by Table 2, which includes the forty-two schools in which only one course is required.

This table indicates that in those institutions which require only one public health course of medical students, nearly half of these courses are given in the third year, and that

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[2] Arkansas, Buffalo, California, Creighton, Harvard and Syracuse.

"hygiene and preventive medicine" is the most common title, "hygiene" ranking second.

TABLE 2.—*Public Health Courses Given in Medical Schools Classified by Name, Number of Schools and Year Given, 1922-1923*

Name of Course	Total	Number of Schools and Year Given 2d	3d	4th	?
Hygiene	9	2	5	2	..
Hygiene and preventive medicine	13	3	8	2*	..
Hygiene and sanitation	1	0	0	1	..
Hygiene and dietetics	1	0	1	0	..
Hygiene and epidemiology	1	0	1	0	..
Preventive medicine	4	1	1	2	..
Preventive medicine, hygiene and sanitation	1	0	0	1	..
Public health	5	1	1	3†	..
Principles of public health	3	0	1	2†	..
Public health and hygiene	1	0	0	1	..
Public health administration	1	0	0	1	..
Public health and preventive medicine	1	0	1	0	..
No special course	1	0	0	0	1
Total	42	7	19	15	1

* Course given last part of third year and first part of fourth year in the University of California.
† Given in sixth year in the universities of Nebraska and Oregon.

GRADUATE COURSES IN PUBLIC HEALTH

Medical schools have extended considerably their elective and graduate work in public health during the past year or two. Graduate courses in public health are now offered in three or more institutions in addition to those mentioned in the report on medical education previously cited. In the University of Louisville, "The medical department, in cooperation with the school of public health of the university, is now giving medical students the option of elective senior courses with junior vacation field work in an organized health department. These courses, if sucessfully completed, will entitle them to a C.P.H. when they receive their diplomas in medicine. This qualifies the graduate for a position as health officer, and more completely fits him for the practice of medicine. On the completion of a fifth year, corresponding to a hospital internship, under the school of public health, these students may receive the degree of D.P.H."

Under the new elective system at Yale, it has been possible to arrange a special option in public health for students desiring to fit themselves for positions in the United States Public Health Service, in the administrative health service of states, counties and cities, and in the various voluntary organizations, local, national and international, which are devoted to the promotion of the public health. Students who elect public health courses as early as their second year and devote two months during the summer succeeding their third year to fourth year dispensary service and a large part of their fourth year to electives in public health may take the degree of Doctor of Public Health after one year of graduate study instead of the two years normally required. A somewhat similar plan is also offered at Johns Hopkins, among other places.

Several medical schools are extending their courses in public health, especially their graduate courses, frequently through the cooperation of city, county or state health officials, as in Georgia, where an intensive plan of community field work has recently been planned for public health students. By recent action of the board of regents, a new Minnesota department of preventive medicine and public health has been organized in the medical school which will be closely associated with the state board of health, the students' health service and the nonofficial health organizations of Minnesota.

While modern medical education has, for the most part, advanced hand in hand with modern medicine, and schools of medicine stand among the highest of the educational institutions, the important field of public health has, until very recently, been sadly neglected. Preventive medicine has been made possible through the advances in medicine as a science, but the call for medical leaders in this field was never more urgent than today. Dodson,[3] in his helpful discussion of the important part which the idea of prevention should play in the work of the individual practitioner, states that larger emphasis should be placed on prevention by every department in the school. According to information furnished by Dr. Haven Emerson, professor of public health administration at Columbia, it was ascertained by the administrative board of the faculty of that institution last year that 33 per cent. of the instruction given to medical students was directly contributory to the preventive aspects of medicine.

In an address delivered at the centennial celebration of the Medical College of the University of Cincinnati in November, 1920, the late Professor Sedgwick said:[4]

> "The medical school which fails today to provide also liberal instruction in preventive medicine, in vital statistics, in sanitary science, in public health laboratory methods, in epidemiology; in preventive sanitation, such as the sanitation of water supplies and other branches of municipal sanitation; in preventive hygiene, such as mental, social, personal and dental hygiene; and in public health education and public health administration—that medical school is sending out its graduates unprepared for some of the most serious problems they will have to face in the immediate future."
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> "Obviously all these subjects cannot be injected into a curriculum already overcrowded. . . . That medical school which first begins this reformation will seize a golden opportunity."

Haythorn,[5] likewise, in considering the problem of preventive medicine in medical education, calls attention to the need for reviewing thoroughly the teaching courses in all departments, and urges that the teaching be carried out with a view to informing the student of the best preventive measure available, and directed toward preparing him for leadership in progressive health movements.

In a recent paper, Winslow[6] said:

> "The first and most fundamental need in facilitating the recruitment of the public health service is the need for a better comprehension on the part of the medical undergraduate, the need for a radical change of atmosphere in the medical school itself. . . . The most important factor upon which we rely at Yale is a fundamental change in the atmosphere of the teaching in every branch of study throughout the four years. Dean Winternitz and the members of the medical faculty have outlined a policy which involves the centering of our whole university hospital around the dispensary and the centering of the dispensary around the health clinic; and each course, from pathology to pediatrics and medicine, is imbued throughout with a new idea, that the function of the physician is to promote health, and not merely to alleviate architecturally completed disease."

These efforts have already stimulated the students as well as instructors at Yale to investigate with a view to instituting preventive measures the sources of at least four different types of communicable diseases which have occurred in patients under their observation during the present school year.

Preventive medicine has come to stay, but it needs the active support of medical men who have been equipped in their medical schools for community leadership.

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[3] Dodson, J. M.: Preventive Medicine and the General Practitioner, J. A. M. A. 80:1 (Jan. 6) 1923.

[4] Sedgwick, W. T.: Modern Medicine and the Public Health, Pub. Heealth Rep. 36:109 (Jan. 28) 1921.

[5] Haythorn, S. R.: The Problem of Preventive Medicine in Practice and in Medical Education, J. A. M. A. 80:885 (March 31) 1923.

[6] Winslow, C.-E. A.: The Recruiting of Sanitarians for the Future Service of the State, Am. J. Pub. Health, May, 1923.

New Jersey June Examination

Dr. Alexander MacAlister, secretary, New Jersey Board of Medical Examiners, reports the written examination held at Trenton, June 19-20, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 57 candidates examined, 45 passed, including 17 osteopaths, and 12 candidates failed, including one osteopath. Eighty-eight candidates were licensed by endorsement of credentials, including 7 osteopaths. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Yale University School of Medicine	(1920)	80.7
Georgetown University School of Medicine	(1922, 3) 80.7, 81.9,	85.9
Johns Hopkins University Medical Department	(1922)	86.6
University of Maryland	(1917)	84.1
Harvard University	(1912)	81.2
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1921, 2) 81.5, 84.5 (1922, 2) 78.9, 79.9	
Jefferson Medical College	(1921) 78.8, (1922, 3) 82.9, 84.6,	84.7
Univ. of Pennsylvania	(1920) 83.6, (1921) 82.3, (1922, 3) 81, 85.6,	89.3
University of Vermont	(1922)	85
University of Freiburg, Germany	(1919)*75.3, (1922)*	83.2
National University of Athens, Greece	(1906)*	78.9
Faculty of Medicine, Guatemala	(1921)*	75
University of Naples, Italy	*(1903)* 76.5, (1916)**	*75*
University of Odessa, Russia	(1910)*	80.2
Osteopaths		75, 78.1, 78.8, 78.9, 79.3, 80.1, 80.1, 80.3, 81.7, 82.9, 84.2, 84.3, 84.4, 85.6, 86.2, 87.1, 88

College FAILED	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1885)	36.9
University of Naples, Italy	(1911)* 70.6, (1914, 3)* 53, 61.8, 71.6, *(1915)* 72.7, (1916, 2)* 64.2,† (1919)* 72.7, (1921)* 72*	
University of Moscow, Russia	(1896)*	66.2
Osteopath		69.4

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Denver College of Physicians and Surgeons	(1908)	Colorado
Central University of Kentucky	*(1906)*	Kentucky
Tulane University	(1916) New York, (1921)	Louisiana
Johns Hopkins University Medical Department	(1920)	Maryland
University of Maryland	*(1921)* New York, *(1922)*	Maryland
Harvard Univ.	(1916) Illinois, (1919) New York, (1922)	Maine
University of Michigan Homeo. Med. College	(1914)	New York
Hamline University	*(1897)*	N. Dakota
University of Minnesota	(1922)	Minnesota
St. Louis University School of Medicine	(1921)	New York
Nebraska School of Medicine	*(1896)*	Mass.
University of Nebraska	(1922)	Nebraska
Albany Medical College	(1910), (1920, 2), (1922)	New York
Bellevue Hospital Medical College	(1895)	New York
Columbia University	(1900), (1917), (1920), (1921, 4)	New York
Cornell University Medical College	(1921)	New York
Fordham Univ. Sch. of Med.	*(1913)*, (1919), (1920), (1921)	New York
Long Island College Hospital	(1914), (1917), (1921, 2)	New York
University and Bellevue Hosp. Med. College	(1906), (1920), (1921), (1922, 10)	New York
Eclectic Medical College of Cincinnati	(1921, 2)	Ohio
Ohio Medical University	(1903)	Oklahoma
Hahnemann Medical Coll. and Hosp. of Philadelphia	(1898), (1904), (1920)	Penna.
Jefferson Med. Coll.	(1909), (1910), (1921) Penna., (1920)	N. Carolina
Medico-Chirurgical College of Philadelphia	(1898), (1899), (1901), (1903), (1907), (1910), (1916)	Penna.
University of Pennsylvania	(1902) Penna., (1918)	N. B. M. Ex.
Woman's Medical College of Pennsylvania	(1914), (1915)	Penna.
Vanderbilt University Medical Department	*(1917)*	Maine
Baylor University College of Medicine	(1921)	New York
University of Vermont	(1921) Vermont, (1921)	New York
Medical College of Virginia	*(1909)* New York, *(1912)*	S. Carolina
University of Virginia	(1921)	New York
Queen's University Faculty of Medicine	(1918)	New York
University of Budapest, Hungary	*(1917)**	New York
University of Rome, Italy	(1907)	Penna.
Osteopaths		Missouri, 4; Pennsylvania, 3

* Graduation not verified.
† No grade given.

Maryland June Examination

Dr. J. McP. Scott, secretary, Maryland Board of Medical Examiners, reports the written examination held at Baltimore, June 19-22, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 76 candidates examined, 74 passed and 2 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Howard University School of Medicine	(1923)	84
Johns Hopkins University	(1919) 85, (1921) 85, (1922, 2) 80, 85, *(1923, 38)* 76, 76, 78, 80, 81, 82, 82, 82, 83, 83, 83, 84, 84, 84, 84, 85, 85, 85, 85, 86, 86, 86, 86, 87, 88, 88, 88, 88, 88, 88, 89, 89, 89, 90, 90, 90, 90, 92	
University of Maryland	(1921) 84, *(1922, 2) 79, 87*, (1923, 20) *78, 78*, 78, 78, 79, 80, 81, 81, 81, 82, 82, 84, 85, 85, 86, 86, 86, 89, 90, 92	
Temple University Dept. of Medicine	(1922) 87, (1923)	81
University of Pennsylvania	(1921) 87, (1923)	80
McGill University Faculty of Medicine	(1921)	85
University of Toronto Faculty of Medicine	*(1918)*	82
University of Vienna, Austria	(1910)†	81
University of Zurich, Switzerland	(1914)	82

College FAILED	Year Grad.	Per Cent.
Howard University School of Medicine	(1919)* (1920)*	

† Graduation not verified.
* No grade given.

Book Notices

Guy de Chauliac (A. D. 1363) On Wounds and Fractures. Translated by W. A. Brennan, A.B. Cloth. Price, $5. Pp. 153. Chicago: *Published by the Translator, 1923.*

Guy de Chauliac, generally known as the "Father of Surgery," was born in France in the last years of the thirteenth century. Like most of the surgeons of his time, he practiced under the patronage of a feudal lord. He studied in Montpellier, Bologna and Paris, and was physician to several of the popes, who conferred special dignities on him. When he compiled his great surgical textbook, copies were promptly made in various languages. The English edition was first published in 1541. The great work consists of seven parts, including anatomy, apostems, wounds, ulcers, fractures and dislocations, special diseases, and antidotes.

Mr. Brennan's text opens with the famous description of the qualities of a surgeon:

> The conditions necessary for the surgeon are four: first, he should be learned; second, he should be expert; third, he must be ingenious, and fourth, he should be able to adapt himself. It is required for the first that the surgeon should know not only the principles of surgery, but also those of medicine in theory and practice; for the second, that he should have seen others operate; for the third, that he should be ingenious, of good judgment and memory to recognize conditions; and for the fourth, that he be adaptable and able to accommodate himself to circumstances. Let the surgeon be bold in all sure things, and fearful in dangerous things; let him avoid all faulty treatments and practices. He ought to be gracious to the sick, considerate to his associates, cautious in his prognostications. Let him be modest, dignified, gentle, pitiful, and merciful; not covetous nor an extortionist of money; but rather let his reward be according to his work, to the means of the patient, to the quality of the issue, and to his own dignity.

In selecting from the complete text, Mr. Brennan has chosen wisely, giving a view of not only the surgical work such as ligature and suturing, but also bandaging and the application of drugs. The translation is simple and very well done.

The Mechanics of the Digestive Tract. By Walter C. Alvarez, M.D., Assistant Professor of Research Medicine, George Williams Hooper Foundation for Medical Research, University of California Medical School. Cloth. Price, $3.50 net. Pp. 192, with 22 illustrations. New York: Paul B. Hoeber, 1922.

Written in a lucid and interesting style by a happy combination of laboratory worker and clinician, this splendid volume ought to appeal to both types of medical men. The text has three major subdivisions. In the earlier chapters, the author is concerned chiefly in minimizing the part played by the nervous elements of the bowel wall (Meissner's and Auerbach's plexus) in normal gastro-intestinal activity. In defense of his myogenic theory, he presents direct and indirect experimental evidence. He handles the affirmative side of the debate admirably. In the second division of the book, he proposes and supports, chiefly through his own laboratory work, the theory of gastro-intestinal gradients, according to which the tonus, irritability and rhythmicity of the smooth musculature of the gastro-intestinal tract decrease progressively from above downward. The gradient theory accounts for the orderly progress of material down the intestinal tract. Although Tashiro showed that nervous tissue produces carbon dioxid at a very high rate, and the author admits that the nerve net in the bowel wall becomes less voluminous from above downward, Alvarez concludes that the increased carbon dioxid output of the upper segments is due to the inherently higher rate of metabolic activity of muscle cells themselves. The higher catalase content of sections of the upper bowel (if such measurements mean anything at all) might be due likewise to the greater amount of nervous tissue in the walls of the intestine as one proceeds from below upward toward the stomach. No one denies the possibility that under certain conditions smooth muscle or even striated muscle shows independent rhythmicity. Early in its development, the heart beat of *Limulus* has a myogenic origin; later in life, its rhythmic action is absolutely dependent on nervous tissue. The fact that the denervated *Limulus* heart muscle *will* beat rhythmically when "put in N/2 NaCl" is a phenomenon which has no bearing on the normal mechanism of the heart beat in the intact animal. In the third division of the book (Chapters IX and X) the author becomes highly speculative, and candidly admits it in the preface. These chapters deal with practical applications of the gradient idea and reserve peristalsis and its symptoms. In Chapter X, Alvarez discusses the factors which alter the normal gradient and which can then account for vomiting, regurgitation, heartburn, belching, nausea, coated tongue, and foul breath, globus, hiccup and biliousness—signs and symptoms resulting presumably from reverse peristalsis. The book has a chapter on objections and difficulties to the conception, and ends with a chapter on technical methods and apparatus found useful in his research. This chapter, with the bibliography (as well as the author and subject index) is particularly valuable to the laboratory worker in this field. The book is worthy of careful perusal and study by every internist and surgeon, and should certainly be on the shelf of every gastro-enterologist for ready reference.

WALTER REED AND YELLOW FEVER. By Howard A. Kelly, M.D. Third edition. Cloth. Price, $2.50. Pp. 355, with 15 illustrations. Baltimore: Norman, Remington Company, 1923.

The first edition of this book appeared in 1906. The present edition includes a life of General George M. Sternberg and of General Gorgas, as well as more recent experimental work on yellow fever, such as that of Noguchi and the attempts of the Rockefeller Foundation to eradicate yellow fever from the world. The early life of Dr. Reed is accumulated from personal documents, including letters and the reports of organizations, so that it is quite authentic. Moreover, Dr. Kelly has selected with rare judgment, so that the account is consecutive and interesting. The brief life of General Sternberg is based largely on the recent biography published by the American Medical Association. Dr. Kelly has apparently accepted wholly the work of Noguchi and *Leptospira icteroides*, which Noguchi isolated, although some parasitologists do not consider the causal relationship of this organism to yellow fever to have been absolutely established. The story of the conquest of yellow fever by medical science is one of the great epics of modern medicine. It is a story with which every medical student should be familiar, because it traced a path for the control of the many other infectious diseases. The account by Dr. Kelly is undoubtedly one of the best available.

THE CHEMISTRY OF LEATHER MANUFACTURE. By John Arthur Wilson, Chief Chemist, A. F. Gallun & Sons Company, Milwaukee. American Chemical Society Monograph Series. Cloth. Price, $5. Pp. 343, with 150 illustrations. New York: Chemical Catalog Company, Inc., 1923.

This should interest the layman who has had any scientific training, because of the history of leather manufacture and developments as a result of scientific investigative work. It contains much of value to the dermatologist because of its careful study of the histology of the skins of various animals used in the preparation of leather. There is a chapter on the chemical constituents of skin and the various stains used in micrographic studies.

ATLAS DER HAUTKRANKHEITEN. Von Hofrat Prof. G. Riehl und Prof. Leo v. Zumbusch. I. Teil: Infektiöse Hautkrankheiten. Paper. Price, 8 Swiss francs. Pp. 60, with 68 illustrations. Leipsic: F. C. W. Vogel, 1923.

The friendly reception given the appearance of the authors' syphilis atlas led them to begin the preparation of an atlas of skin diseases. The plates are beautifully printed from Uvachrom photographs but, as usual in color photography, the definition is not quite so sharp as in the black and white photographs. The atlas should be of considerable diagnostic aid to one not having access to a large amount of clinical material.

Miscellany

PEDIATRIC CLINICS IN CENTRAL EUROPE *

J. H. MASON KNOX, JR., M.D.
BALTIMORE
AND
JOHN B. MANNING, M.D.
SEATTLE

During a year spent in American Red Cross work on behalf of the children of several of the countries of eastern Europe, we had the opportunity to visit a number of universities and medical schools and to learn something of the courses offered and of the instruction given in pediatrics. An outline of the places in which the future pediatricians of the less familiar centers are trained should be of interest, for after all only a small proportion of the medical students in Latvia and Poland, for example, are able to go to Germany, France or England, and must depend on the instruction obtained in their own countries at the nearest schools and hospitals.

Our travels extended from the Baltic to the Adriatic, and included particularly the newly formed democracies of Esthonia, Latvia, Lithuania, Poland and Czechoslovakia, and the reduced and altered nations—Austria and Hungary.

ESTHONIA

Esthonia is in many respects the most enterprising of the three Baltic states. The native race comes from a sturdy stock related to the Finns, and its governing officials are a forward-looking group, familiar with the educational, health and philanthropic programs of other countries. The university center of the country is Dorpat, founded in 1632 by Gustavus Adolphus. As one walks about the beautiful rolling campus dotted with imposing buildings, it is easy to imagine oneself back in a university town in America. One meets at every turn groups of young students wearing the insignia of corps or class, and hears at night college songs much like those at home.

The pride of Dorpat is the university library, one of the most valuable in Europe, containing more than 500,000 volumes and many valuable manuscripts. These were all taken by the Bolsheviki to Russia, but returned a little worse for their travels after the peace of Riga. The university before the war was under Russian domination, but now the transfer to the Esthonian language as the vehicle of instruction is nearly completed, and there is a strong faculty in all departments. There are about 4,000 students, including over 700 in the courses in medicine.

Instruction in diseases of children is given in two semesters three times weekly. It is obligatory for all students in their fourth year. The lectures are in the form of clinics at which patients are examined by students and demonstrated to the class. Teaching material is obtained from a large outpatient department, a small children's hospital of twenty-five beds and an associated mothers' and infants' home. The department is conducted by Professor Lüüs, a man of ability who had made his special preparation in pediatrics in several of the best German clinics. Professor Lüüs cooperated with the American Red Cross in the most cordial manner in its child health program. He provided us quarters in his dispensary for our health center, and assigned his first assistant and several nurses to the work. This center, in connection with the nearby obstetric clinic, has become an important project, through which it is sought to reach all the expectant mothers and new-born children needing care in the city.

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* Read at the meeting of the American Pediatric Society, French Lick Springs, Ind., May 31, 1923.

Visiting by the nurses in the homes of the children is now being carried on.

Through the work of the center, the students of this important medical clinic will become familiar with the standardized methods of maternity and child health activities, and will be equipped to start similar activities when they begin their practice throughout the country.

LATVIA

In Latvia, the government has taken over and reorganized the high school in its beautiful capital city of Riga into a university. Already there are 3,000 students, including about 600 in medicine. The courses in pediatrics are given by Professor Gärtje, a scholarly man trained in Petrograd. They consist of two courses of lectures and clinics—each occupying two semesters, and cover rather thoroughly the whole subject. Clinical material is obtained in an outpatient department and in the wards of a large memorial children's hospital. The students have opportunity to examine patients under the direction of instructors.

In Riga, in addition to a number of small children's clinics, in connection with the American relief kitchens, a large area of the city near an important city hospital was selected for an intensive demonstration in maternity and child health. To the center the names and addresses of new-born infants are reported daily, and the infants promptly visited in their homes. When the American Red Cross withdrew last July, there had been more than 500 expectant mothers registered and given prenatal care. In this prophylactic work we had the support and cooperation of both the obstetric and the pediatric department of the university medical school.

LITHUANIA

In Kovno, the present capital of Lithuania, which was accepted as such under protest when Poland seized Vilna, a university was started recently. There is no dearth of medical students, but the courses in pediatrics have not been formally opened, and as yet no pediatrician of special training has been engaged. There are several excellent hospitals in the city, including a large military hospital, which furnish clinical material.

POLAND

The first university visited in Poland was in Vilna—an old university center that had been suppressed for more than a hundred years by Russia; but now, under the patriotic leadership of a group of young professors, including several Polish Americans, conspicuous among whom is Dr. Retinger, a physiologic chemist from Chicago, old barrack buildings are being transformed into splendid lecture rooms and laboratories. A children's clinic with about fifty beds and a large outpatient department was about to be opened at the time of our last visit. As yet, a professor of pediatrics had not been chosen, nor was the outline of instruction in diseases of children completed. There are two admirable health centers for children, one Jewish and one Polish, in active operation in Vilna. Students throng all the classes; many of them are submitting to great physical hardships in their effort to secure an education.

At the University of Warsaw, there are said to be more than 8,000 students. Of these, 2,000 are in the medical department. The pediatric clinic is under the direction of Prof. M. Michaloniez. A full didactic and practical course is offered. There is a well equipped laboratory available for research workers. More than 200 students are taking major pediatrics.

The policlinic for children includes six examining rooms, a dental clinic, a roentgen-ray room, a large lecture hall and a ward containing fifty infants' beds. Instruction to students is also given at the Carl and Mary Children's Hospital in another part of the city. This hospital, which is an endowed institution completed just before the war, consists of an imposing group of buildings containing 100 medical and sixty surgical beds. The provision for isolation and care of contagious cases, both in the outpatient department and wards, is unusually elaborate. There are large laboratories for routine work and for investigation. Altogether, this hospital would compare favorably in equipment and facilities for the care of patients with any children's hospital in this country or elsewhere.

KRAKOW

One cannot enter the historic capital of Poland without a thrill. Here are the remains of the country's great men. The grass covered mound formed by handfuls of earth brought by patriotic devotees from all parts of Poland in memory of Kosciusko, the tomb of the hero soldier and that of Stanislaus, the patron saint of Poland, in the cathedral or the citadel, and the classic university quadrangle with the statue of Copernicus in the center, give the visitor the feeling that he is treading on sacred soil.

The University of Krakow is the second oldest in Europe, dating back to 1364. Here, too, students are pouring in. There are now about 5,000 men and women in all departments, including 600 enrolled in the medical school. The chair of pediatrics is occupied by Professor Lewkowicz. The usual courses of lectures and clinics are given. A large children's hospital furnishes the clinical material. At Krakow, assisted by members of the medical faculty, the American Red Cross organized a six months' course for nurses' aids to furnish assistants in the various health centers, because of the great dearth of nurses in Poland. These young women are proving invaluable in operating our program until the graduates of the splendid training schools in Posen and Warsaw are available.

At Lwow, the much fought over Lemberg of the war dispatches and the second city in size in the country, we found a splendid pediatric clinic under the direction of Professor Gröer, a friend and a fellow student of Pirquet.

The children's wards are small, but all cases are used for instruction and study. Especial attention is given to the method of forced feeding suggested first by Pirquet. It was difficult for us to believe the charts shown us of patients with severe ileocolitis, with many bloody stools daily, who had been carried through their illness to recovery without loss of weight. The nurses are all given especial instruction in the preparation of foods containing definite proportionate amounts of protein, fats and carbohydrates, and do the actual cooking for the patients themselves. Full courses in pediatrics are given during the third and fourth years. An active outpatient department is maintained.

Professor Gröer enthusiastically assisted in the establishment of intensive child health work in the portion of the city surrounding the clinic. An American nurse was the only addition to the personnel required.

CZECHOSLOVAKIA

As might have been anticipated under the administration of President Masaryk, himself a university professor, the government of Czechoslovakia is laying great emphasis on the value of education. Masaryk has publicly asserted that the policy he is most proud of in Slovakia is the establishment of 2,000 secondary schools. There are four universities with complete faculties, including that of medicine, in the country. The great difficulty is to provide adequately for the large numbers of students who are applying for admission.

In Prague, as is well known, there are two completely separate universities and medical schools, one under German and one under Czech direction. In the former, pediatrics is taught by Professor Longer and Professor Fischl, with a number of assistants. Each professor gives five lectures or clinics a week. Bedside instruction is given at the German Children's Hospital and at a section of the large Foundlings' Home—made famous by Professor Epstein. A large policlinic is maintained, at which additional instruction is given. A correspondingly complete course in diseases of children is given in the Charles University Medical School by Professor Pesina and Professor Svehla.

The large Czech Children's Hospital and another section of the Foundlings' Home are used for clinical teaching. A course in the psychopathology of children is offered by Dr. Herford in the institute for feebleminded children.

The American Red Cross established several model child health centers in Prague, and secured the cooperation of both these faculties. Through these centers and others started elsewhere, twenty-one in all, 40,000 school children were given their first physical examination, and much corrective work was accomplished.

One of the great needs in the country is for a better standard of nursing. To help supply this deficiency, a training school has been started under American nurses, and two wards of the old general hospital have been turned over to the schools for the practical work of its students. The nursing care that the patients in these two wards receive has evoked great admiration from the visiting physicians. It was a well merited honor for the school that during a serious illness of President Masaryk some months ago, he sent for and was nursed by two American nurses.

Universities since the war have been started in Bruno, Moravia, and in Bratislava. In each of these a similar course in pediatrics is offered. The one in Bruno is under Dr. Teyschl, and that in Bratislava, under Professor Bedlik. Clinical instruction is given in Bruno in the children's department of the general hospital, and in Bratislava at the large children's clinic.

New university buildings are being erected at each of these newer schools, and some of the strongest members of the faculty at Prague are being sent temporarily to Bruno and Bratislava until the courses have become well established.

AUSTRIA

The pediatric clinics in Austria are so well known in this country that no extended description is necessary. There still remain in the country three important centers—Vienna with 4,000 medical students, Graz with 1,000 and Innsbruck with 700. All of these students are expected, but not required, to attend pediatric lectures half a year for their five years of study, which is equivalent to four and a half hours a week for a year. There seemed to be comparatively little opportunity for practical work. Women are admitted on the same terms as men.

The children's clinic at the university in Vienna was a busy place at the time of our visit. Especial attention was given to graduate instruction and to research under the direction of Pirquet and Schick. Miss Chick of England was just completing her important studies in rickets. An interesting feature of the clinic was the large class of children with incipient tuberculosis who were kept for long periods in a roof ward, in the fresh air and sunshine. The results of this treatment were said to be very striking. The preparation of the infant dietaries by the nem system was, of course, in vogue, but as we traveled away from Austria, this method of feeding seemed to have a diminishing number of adherents.

In the outpatient department is maintained one of the many child health centers conducted in Vienna with the assistance of the American Red Cross. At these stations and at the mothers and infants' home under the charge of Dr. Moll, there is opportunity for those students interested to become familiar with the best methods of infant and child care.

At Gratz it was a pleasure to renew our acquaintance with Prof. Franz Hamburger. His clinic of 200 beds is of older construction and is greatly in need of additional support. Important work is going on, however. We were shown, among other things, an interesting series of rachitic bone lesions being treated by violet rays.

The organization of the American Red Cross child health program in the province of Styrea is under Professor Hamburger's leadership.

HUNGARY

Pediatrics is taught in four universities of Hungary—in Budapest, Szeged, Debreczen and Pécs. In Budapest there are 5,000 medical students; in each of the others, about 700. In each of these schools all the students are required to take pediatrics—five one-hour lectures a week for one semester. It is proposed to increase the lectures to cover two semesters. There is little opportunity for the students to have practical work with patients. Women are admitted to all schools, but the number is restricted, and the entrance requirements are higher than for men. We were able to visit only the university clinic at Budapest. It was founded over eighty years ago by John Bokay, and is said to be the fourth oldest children's hospital in the world. The first Bokay was succeeded in the hospital and chair of pediatrics by his son, Janos Bokay, a genial and courteous physician, who also exerts a fatherly oversight over all the activities of the clinic.

Professor Bokay is much interested in the history of pediatrics, and zealously guards in his library the first book on pediatrics by Mercurialis, published in Latin in 1601. From this clinic appeared the first report on 1,000 cases of diphtheria in which intubation was practiced with the O'Dwyer tubes. In the pathologic museum are many exquisite specimens showing unusual varieties of involvement with diphtheric membrane. The war has not embittered the spirit of Professor Bokay. He still directs his visitors to his gallery where are displayed the pictures of his colleagues of many lands engaged on both sides of the recent conflict.

The present child health program in Hungary is in some respects the most complete in the world. Much of its success is due to the unfailing and whole-hearted support of this kindly wise teacher, who has the confidence and affection of all classes in the country.

JUGOSLAVIA

Inquiry was made at Belgrade concerning the teaching of pediatrics. The medical school there was opened only three years ago. There will be no course in pediatrics for another year. As yet there is no professor appointed.

The impression made on us from our hurried inspection of the more important pediatric clinics in eastern Europe was that, in the main, excellent didactic instruction is given—instruction that would compare favorably with that elsewhere in the countries of western Europe. One can be confident that each of these new republics in old lands, in the future, will have excellent pediatricians who will make valuable contributions to our field of work and who will have an intelligent interest in infant and child hygiene.

A large part of the practical experience of these future children's men in the actual handling of patients will have to be obtained after graduation.

Need for Local Health Officer.—Compliance with the law is a duty which is imposed upon us all, no matter what profession we follow, whether we be preachers of the gospel, lawyers or physicians. Because of the importance of health, there are a great many laws pertaining to it, and the physician is at times put to it pretty hard to comply to the letter. There should be a local health officer to aid him in every way possible.—Chichester, P. M.: *Virginia M. Monthly* 50: 465 (Oct.) 1923.

Medicolegal

Valid Arrangement for Care of Tuberculous Patients

(City and County of San Francisco et al. v. Boyle, Auditor (Calif.) 215 Pac. R. 549)

The Supreme Court of California says that this was an application for a writ of mandate to compel the auditor of the city and county of San Francisco to audit and approve a demand in favor of the county of Alameda for $5,000 on account of expenses incurred by the latter county for architect's fees, plans and specifications for proposed units to be added to the hospital maintained by the latter county, near Livermore, for patients with tuberculosis, such units being intended for the benefit of the city and county of San Francisco in the care and treatment of patients thereof affected with tuberculosis. The auditor contended that the arrangement made was invalid; and this proceeding was designed to test its validity.

To make provision for the care of indigent sick and dependent poor is a duty of state and society. A duty equally great rests on the state to protect and guard the health of the public from infectious or other communicable forms of diseases, one of the most widely prevalent of which is tuberculosis. The board of supervisors of the city and county of San Francisco, in dealing with the question, found as a fact that the zone in which it proposed to maintain and care for its patients affected with tuberculosis possesses a more favorable climatic condition and superior surroundings for the successful treatment of the disease than is possessed by that city and county. Without such a finding of fact, which is conclusive on this court, the court would be permitted to take judicial notice of the geographic position of the two localities with reference to proximity to the sea and the influence of ocean winds on the climate of each, and also the density of the population of each considered relatively in respect to areas. In the treatment of pulmonary forms of tuberculosis, the main reliance for improvement or cure rests largely on the accessibility of the patient to pure, fresh air such as altitude and open areas afford. Rest and quiet are other essentials. From recitals found in the agreement, the board of supervisors was unquestionably induced or influenced to enter into the contract by a proper consideration for the comfort and welfare of the affected patients, as well as the discharge of a duty which was cast on it to protect the health of the public.

The authority under which the city and county justified its right to make the contract was the statute effective July 29, 1921, an act providing for the joint exercise of powers by counties, by municipalities, or by municipalities and counties; and this court knows of no reason why the city and county should be prevented from bringing itself within the provisions of that statute. The statute and the one effective Aug. 2, 1921, each authorizes the adoption of a plan and procedure independent of the other, and neither one was intended to be exclusive. Whether the plan adopted could be improved on was not a question for this court's determination. Any method or system devised would be subject to criticism. But, however that might be, the court is unable to see any legal objection to the plan proposed.

Nor was it made clear that the proposed plan should be declared invalid for the reason that the county of Alameda was to retain supervisory control of the hospital. Any institution designed for the treatment of persons affected with tuberculosis must from necessity be under the direction and management of skilled, efficient persons. There doubtless exist good reasons for protecting persons who are suffering in the incipient stage from those who are suffering in the more advanced stages, thus requiring rules of classification according to the stages of the disease. There may also be good reasons for the rejection or removal of patients whose reception or retention would endanger the welfare of others. Reasonable rules and regulations are highly essential to the successful management of a sanatorium. It could not be presumed that unreasonable rules would be adopted, or that arbitrary authority would be exercised in any respect. The agreement in this case provided that all rules to govern the institution should operate uniformly on the patients of both parties to the contract. It was to be expected that a sanatorium or hospital maintained for the care and treatment of persons affected with tuberculosis would require a different kind of skill in administering treatment, in superintendence and in management, than would be required by a county institution for the care of persons suffering from ordinary ailments.

The writ of mandate sought is granted.

Detention of Woman Refusing to Be Examined for Venereal Disease

(Ex parte Clemente (Calif.), 215 Pac. R. 698)

The District Court of Appeal of California, Second District, Division 1, says that the petitioner was before the court on a writ of habeas corpus. The petition therefor set forth that she was illegally detained and restrained of her liberty by the chief of police of the city of Los Angeles, acting under instructions from the health department of that city not to release her until she submitted to an examination ordered to be made by the health department for the purpose of determining whether she was affected with a contagious or infectious disease. On the hearing the testimony showed that the petitioner had been arrested and charged with conducting a house of ill fame. Two police officers of the city testified that they visited the house of the petitioner on the day of her arrest, and of the acts and conduct of the petitioner on that occasion. There was also testimony to the effect that the reputation of the petitioner's house was that of a house of ill fame. This information had all been furnished to the health department, and on it the department made its order for the examination of the petitioner and for her detention until she should submit to such an examination. Repeated demands had been made of the petitioner by the health department that she submit to the required examination, all of which had been refused by her. The court is satisfied that the testimony produced at the hearing warranted the conclusion that the house conducted by the petitioner was a house of ill fame, that she was an inmate thereof, and personally participated in the unlawful acts carried on therein. The health department having this information was, in the court's opinion, justified in its detention of the petitioner. This information furnished reasonable ground to believe that the petitioner was affected with the kind of disease referred to, and this was all that was necessary to authorize the health department to enforce quarantine measures against her. Wherefore she was remanded to the custody of the chief of police.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

66: 1-213 (Sept.) 1923

*Influence of Diet on Alkaline Reserve and Insulin in Hypoglycemia in Rabbits. I. H. Page, Indianapolis.—p. 1.
*Chemical Regulation of Respiration. I. Metabolism of Respiratory Center and Coordination of Dual Function of Hemoglobin. R. Gesell, St. Louis.—p. 5.
Sensitization to Heat Due to Exposure of Short Wave Lengths. Influence of Ozone. H. S. Forbes and G. A. Daland, Boston.—p. 50.
Sensitization of Protoplasm to Heat by Exposure to Light of Short Wave Length. W. T. Bovie and G. A. Daland, Boston.—p. 55.
*Physiology of Sleep. I. Effects of Prolonged Sleeplessness on Man. N. Kleitman, Chicago.—p. 67.
*Calorigenic Action of Epinephrin Chlorid. W. M. Boothby and I. Sandiford, Rochester, Minn.—p. 93.
Phase Reversal in Emulsions and Protoplasm. W. Seifriz, New Haven, Conn.—p. 124.
Effect of Gastrin and Histamin on Movements of Stomach and Intestine During Hunger. A. C. Ivy and D. A. Vloedman, Chicago.—p. 140.
Seasonal Changes in Gases and Sugar of Blood and Nitrogen Distribution in Blood and Urine of Alligator. A. Hopping, New York.—p. 145.
Physiology of Vitamins. II. Parenteral Administration of Vitamin B. Mammalian Experiments. G. R. Cowgill, New Haven, Conn.—p. 164.
Effect of Fatigued Muscle on Perfused Epinephrin. R. G. Hoskins and E. P. Durrant, Columbus, Ohio.—p. 176.
*Locomotion of Leukocytes. I. Normal Rate of Locomotion of Human Neutrophilic Leukocytes in Vitro. M. McCutcheon, Philadelphia.—p. 180.
*Id. II. Effect of Temperature on Rate of Locomotion of Human Neutrophilic Leukocytes in Vitro. M. McCutcheon, Philadelphia.—p. 185.
Some Effects of Various Environmental Temperatures on Blood of Dogs. F. B. Flinn and E. L. Scott, New York.—p. 191.
Absorption from Cloaca in Birds. N. C. Sharpe, Toronto.—p. 209.

Influence of Diet on Alkaline Reserve and Insulin Hyperglycemia.—Page's work shows that acid ash forming diets produce a condition of mild acidosis in rabbits whereas basic ash diets tend toward the production of alkalosis. Acid diets render rabbits more resistant to the hypoglycemic effects of insulin than basic diets by tending to produce a condition of acidosis, thus increasing glycogenolysis and in this way antagonizing the insulin action. Diet in the rabbit is an important factor in the regulation of the blood sugar level.

Chemical Regulation of Respiration.—The following points are emphasized by Gesell. Changes in acidity of the respiratory center constitute the primary chemical control of respiration. Changes in oxidation constitute a less direct control. But as oxidation determines the kind and amount of acid formed and the efficiency of transport and elimination, it is, in the end, the normal regulator of respiration. In accordance with this view two kinds of acid make up the normal respiratory stimulus, (1) a poorly diffusible and fixed acid, such as lactic acid, and (2) the weak, volatile and readily diffusible carbon dioxid, the respiratory stimulus being the sum of the effects of both. During anoxemia reduced oxidation in the center leads to an increased formation of acid and to an accumulation of the relatively poorly diffusible acid in a relatively poorly buffered cytoplasm no longer fully protected by the potential alkalinity of the blood or by its own buffer salts. By virtue of its own acid metabolism and its extreme sensitivity to minute changes in its own p_H, the center is sensitive to minute changes in the oxygen tension of the arterial blood and is in a position to act as vanguard to internal respiration. The capacity of the center to act as rearguard, however, must not be overlooked. Since fluctuations in the general level of carbon dioxid and oxygen in the blood is a function of the fluctuations in the general metabolism as well as of pulmonary ventilation, the respiratory center must of necessity continually function both as vanguard and rearguard to internal respiration.

Effects of Experimental Insomnia.—Kleitman studied the effects of experimental insomnia in man, the duration of complete sleeplessness being from forty to 115 hours. Subjectively, the persons employed could easily keep awake while engaged in some sort of activity, but felt very drowsy when sitting, and fell asleep immediately on lying down. Muscular relaxation induces sleep under normal conditions (confirming Coriat), but practically precipitates sleep under conditions of experimental insomnia. Blood sugar, alkaline reserve of the blood and plasma, percentage of hemoglobin, percentage of corpuscles, red and white blood cell count, body weight, basal metabolic rate, appetite, temperature, ability to name letters and to do mental arithmetic, all of these showed no variations from normal during the period of sleeplessness. Respiration, heart rate, blood pressure, showed a marked decrease in insomnia, but this decrease was due mainly to greater muscular relaxation of the sleepy subject. Numerous reflexes were found to be present in sleep following insomnia, but the response was somewhat sluggish. Sleep seemed to be deeper six hours after its onset than at the end of two hours. A positive Babinski reflex could be elicited in every subject tested during the sleep that followed insomnia. It is interpreted as indicating a functional block of the pyramidal system of fibers. This reflex could be reversed by rapidly repeated stimulation of the sole. The depth of the sleep decreased at the same time. This indicates that a number of subminimal stimuli overcome the synaptic resistance and produce a flexion of the great toe. The onset of sleep is probably due to complete muscular relaxation, voluntary or involuntary. A provisional theory is proposed, based on the conception of "levels" in the central nervous system, as first elaborated by Hughlings Jackson. Sleep may be due to fatigue of the highest centers of consciousness, and dreaming to the persistence of the activity of the lower centers.

Calorigenic Action of Epinephrin Chlorid.—Evidence is presented by Boothby and Sandiford that epinephrin when injected intravenously into dogs in doses that seem probably within the power of the suprarenals to secrete, does actually increase the rate of heat production, probably producing this increase by a general and quite parallel increase in the heat production of all or nearly all types of cells. The increased metabolism is accompanied by an elevation of the respiratory quotient, and by a slight increase in the blood sugar concentration, as well as certain other secondary manifestations.

Velocity of Locomotion of Leukocytes.—A method is given by McCutcheon for determining the velocity of normal human neutrophilic leukocytes examined in whole blood in vitro. In the case of the individual chosen the average rate of locomotion, under the conditions described, was 170.6 ± 2.2. microns in five minutes, or 34.1 microns per minute, at 37 C.

Effect of Temperature on Locomotion of Leukocytes.—McCutcheon found the velocity of locomotion shown by neutrophilic polymorphonuclear leukocytes of one person to be doubled by a rise in temperature of 10 C. within certain limits of temperature variation. This constitutes another instance in which van't Hoff's law is found to hold for biologic phenomena.

American Journal of Tropical Medicine, Baltimore

3: 369-460 (Sept.) 1923

Culion Leper Colony. H. W. Wade and J. A. Basa, Culion, Palawan, P. I.—p. 395.
*Bacteriology of Leprosy. II. Chromogenic Acid-Fast Bacillus of Clegg. E. L. Walker.—p. 417.
Acute Form of American Trypanosomiasis: Pathology, Necropsy, Trypanosomiasis Cruzi in Animals. B. C. Crowell, Philadelphia.—p. 425.

Growing Clegg Leprosy Bacillus.—The cultivation of a chromogenic acid-fast bacillus from leprous lesions on Musgrave and Clegg's medium is confirmed by Walker. Neither the symbiotic amebas of Clegg nor the protein split products of Duval are necessary for the growth of this organism. The essential factor for the development of Clegg's bacillus appears to be the lean medium containing only traces of nutrient substances. Clegg's acid-fast bacillus develops in transplants from colonies of Bordoni-Uffreduzzi's partially acid-fast diphtheroid on Musgrave and Clegg's medium. A chromogenic acid-fast bacillus, similar to Clegg's bacillus, develops in transplants from colonies of the pleomorphic diphtheroid from preputial smegma on Musgrave and Clegg's medium. A nonchromogenic a[illegible] with morp[illegible] logic differences from Clegg' [illegible] from nonleprous nasal [illegible] theroid isolated from such secretions on Musgrave and Clegg's medium. Clegg's bacillus appears to be a developmental stage of Bordoni-Uffreduzzi's diphtheroid, but the possibility that it may be a contamination cannot as yet be excluded absolutely. Both Clegg and Bordoni-Uffreduzzi and their successors may have cultivated different forms of one and the same pleomorphic bacterium from leprosy. This organism appears to be identical with or closely related to the pleomorphic and facultative acid-fast *Bacillus smegmatis*.

Annals of Clinical Medicine, Baltimore

2: 75-135 (Sept.) 1923

Newer Conception of Asthma and Hay-Fever. R. A. Kern, Philadelphia.—p. 75.
Modern Treatment for Asthma. J. A. Clarke, Philadelphia.—p. 83.
Treatment of Acute Pneumococcus Pneumonias. S. S. Cohen, Philadelphia.—p. 90.
*Results with Kidney Function Tests. L. M. Breed and J. Rendall, Pasadena, Calif.—p. 105.
*Present Status of Quinidin Therapy. C. C. Wolferth, Philadelphia.—p. 123.
*Basal Metabolic Rate Determination. W. H. Stoner, Philadelphia.—p. 131.

Results with Kidney Function Tests.—The results of a series of tests of the functional power of the kidney in 250 suspected cases of nephritis are presented by Breed and Rendall. They assert that for a proper estimation of the efficiency of the kidney, none of the so-called renal function tests is reliable. The most reliable results are secured from the blood chemistry and the two hourly and day and night variations in specific gravity at the end of three days of high protein, salt and liquid intake. The authors' experience has shown that high values for uric acid and sugar in the blood under such conditions are suggestive of cholecystitis. Twenty such cases were subjected to operation and all showed varying degrees of cholecystitis or cholelithiasis. Forty other such cases gave clinical evidence of cholecystitis. The operated cases all showed a lowering of uric acid and sugar in the blood after operation. A diet is outlined which has been found beneficial in cases of cholecystitis, either postoperative or without operation.

Status of Quinidin Therapy.—The results of quinidin therapy, in Wolferth's opinion, are excellent in cases of auricular fibrillation of short duration and good compensation. It is of little value in fibrillation of long standing and is contraindicated in the presence of advanced heart failure. Digitalis, rather than quinidin, should be the first remedy employed in auricular flutter. Quinidin has shown promise of being valuable in the treatment of suitable cases of paroxysmal rapid heart action. It has no value in the treatment of simple tachycardia and a very limited field of usefulness in extrasystolic arrhythmia. Quinidin in appropriate dosage has been shown experimentally to depress the principal functions of heart muscle, including contractility, conductivity, stimulus production and excitability. It also prolongs the refractory period of heart muscle and causes weakness of vagus nerve action.

Basal Metabolic Rate Determination.—Basal metabolic rate is defined by Stoner. The various standards and methods of determinations are outlined. The necessity for rigid standardization of the preparation of the subject is emphasized. A simple formula for calculating the basal metabolic rate from the four minute oxygen consumption is given. Brief general reference is made to the important literature.

Annals of Surgery, Philadelphia

78: 305-432 (Sept.) 1923

*End Results of Arterial Transplants. O. Klotz, Sao Paulo, Brazil. H. H. Permar and C. C. Guthrie, Pittsburgh.—p. 305.
Relation of Surgery to Vascular Sympathetic System. W. A. Sherwood, Brooklyn.—p. 321.
Anthrax and Its Treatment. H. E. Santee, New York.—p. 326.
*Operative Curability of Carcinoma of Stomach. D. Cheever, Boston.—p. 332.
Ten Cases of Acute Perforation of Duodenal Ulcer. H. K. Shawan and C. F. Vale, Detroit.—p. 342.
Acute Intussusception in Infants. Fifty-One Cases. R. W. Bolling, New York.—p. 349.
*Experimental Study on Use of Intra-Abdominal Injections of Hypertonic Glucose Solution in Treatment of Peritonitis. J. K. Narat, Chicago.—p. 357.
Influence of Hemorrhage on Mortality in Gunshot Wounds and Other Injuries of Abdomen. J. M. Mason, Birmingham, Ala.—p. 364.
*End Results in Malignant Disease of Testis. W. B. Coley, New York.—p. 370.
*Empyema of Ureteral Stump Following Incomplete Ureterectomy. A. Hyman, New York.—p. 387.
Rupture of Tendon of Extensor Longus Pollicis Following a Colles Fracture. A. P. C. Ashhurst, Philadelphia.—p. 398.

Arterial Transplantation.—An analysis of the end results in two cases of transplantation of vascular segments is given by Klotz, Permar and Guthrie. They illustrate the similarity of the functional results regardless of whether living heterologous tissue is used in transplantation of whether devitalized vascular segments are used. In one case a rabbit aorta was transplanted on the carotid artery of a dog. In the second case the devitalized (liquor formaldehydi fixed) segment of dog vena cava was transplanted on the common carotid artery of a dog. It served to preserve the circulation of the common carotid artery for a period of eleven years when death resulted from a tumor of bone. The implanted segment, which at the time of the original experiment had been devitalized, persisted in parts of its structure, there still being remnants of collagen and elastic fibers of the original implant. The original dead elements of the segment were not entirely removed. The introduced segment and its secondary walls were uniformly dilated to give rise to a fuseiform dilatation. The segment was also lengthened. The authors call attention to the fact that in all instances in which a dead segment serves its purpose for more than a month or six weeks an aneurysmal dilatation occupies its length. This fusiform sacculation persists not only during the existence of the segment, but permanently with the reestablishment of the new tube. The presence of such a fusiform dilatation may predispose to the development of a thrombus at a time long after the effects of the operative intervention have disappeared, as is the case with true aneurysms. The development of saccular dilatation in these living heterologous or dead segments further substantiates the evidence that the most important lesion which leads to dilatation is a loss of the strength of the media.

Operative Curability of Carcinoma of Stomach.—The records of 250 cases of carcinoma of the stomach were reviewed by Cheever. Two thirds of the number occurred in men. Weakness and debility, general abdominal pain, loss of weight, constipation, pallor and backache together constituted the initial symptoms in 20.8 per cent. of the cases. In 30 per cent., the earlier symptoms would not be likely to suggest to the patient that the stomach was the source. Vomiting before admission occurred in 68 per cent. Blood or coffee grounds were noted in forty-eight cases. Tarry stools were noted in twenty-six cases. In the great majority of these 236 patients the disease was too advanced to permit radical operation. Fifty per cent. had had symptoms for only six months, and 80 per cent. for less than one year. An ulcer history was positive in 7.6 per cent.; plausible in 5.9 per cent.; possible in 8.4 per cent.; and absent in 77.9 per cent. Radical operation was performed in twenty-three cases. Of patients not operated on 20.6 per cent. lived four months or more, while 73.3 per cent. of the patients afforded palliative operations lived a similar period. Thirteen per cent. of the patients radically operated on were living at the end of five years without evidence of recurrence. Another patient was living at the end of four years and eleven months. Another lived seven years, but developed an apparently independent cancer of the breast and died of spinal metastases without known local recurrence of the carcinoma of the stomach.

Intra-Abdominal Injection of Hypertonic Glucose Solution in Peritonitis.—In order to make the treatment of free peritonitis as physiologic as possible, that is to stimulate the natural function of the peritoneum, Narat experimented successfully in rabbits with intra-abdominal injections of hypertonic glucose (20 per cent.) solution. Since this method is absolutely harmless and gives encouraging results, Narat feels justified in suggesting that this treatment be used in human beings in suitable cases. About 500 c.c. of 20 per cent. glucose solution would be the proper initial dose. The injections could be repeated through the drainage tube every six or twelve hours. Certain fundamental principles laid down for the treatment of peritoneal inflammation must be observed strictly, namely, gastric lavage, Fowler's posture, absolutely nothing to be put into the stomach, rectal feeding, introduction of liquids into the system by proctoclysis, hypodermoclysis or intravenous infusions, avoidance of purgation, etc. In addition, at the end of the operation, if such is indicated, the glucose solution may be poured into the abdominal cavity and the injection repeated through the drainage tube periodically.

Permanent Cure Following Removal of Malignant Tumor of Testis.—The number of permanent cures following surgical removal of the testis for malignant disease, Coley says, is comparatively small, the proportion being not over 5 or 10 per cent. This number, in his opinion, is not sufficiently increased by the radical removal of the retroperitoneal glands by the abdominal route to warrant the risk of such an operation. Long continued systemic treatment with the mixed toxins of erysipelas and *Bacillus prodigiosus*, combined with thorough irradiation of the abdomen and supraclavicular glands by radium or roentgen rays, he assures, offers a far better hope of permanent cure than any form of operative treatment alone.

Empyema of Ureteral Stump.—The three cases reported by Hyman demonstrate that the ureteral stump left behind after an incomplete ureterectomy may be the cause of a persistent pyuria. Two of the cases operated on also revealed how difficult a surgical procedure it is to excise this stump, and emphasizes the necessity, when doing a primary ureterectomy for pyoureter, for excising the entire ureter down to its entrance into the bladder.

Archives of Occupational Therapy, Baltimore

2: 335-414 (Oct.) 1923

*Health and Industrial Problems of Heart Disease in Middle Life. F. Brush, White Plains, N. Y.—p. 335.
Psychology of Occupational Therapy. E. L. Canton, Washington, D. C.—p. 347.
Occupational Therapy and Vocational Training in Tuberculosis Sanatorium. A. T. Laird, Nopeming, Minn.—p. 359.
Therapeutic Value of Toy Making. C. B. Davis, Washington, D. C.—p. 369.
Working Program for Section on Occupational Therapy and Employment of Tuberculosus Patients of the Masaryk League Against Tuberculosis. H. J. Pelc, Prague, Czechoslovakia.—p. 377.
Occupational Therapy in Canada. J. H. Stewart, Winnipeg.—p. 381.
Occupational Therapy in Virginia. V. G. Cole, Marion, Va.—p. 385.
Occupational Therapy in Vermont. C. Williams, Woodstock, Vt.—p. 389.
Occupational Therapy in Mississippi. E. G. Morse, Jackson, Miss.—p. 397.
Occupational Therapy at North Dakota State Hospital. A. W. Guest, Jamestown, N. D.—p. 399.

Industrial Problems of Heart Disease.—The prevention of overstress in patients of working age with cardiac disease, Brush says, is really a form of heart disease prevention, for each recurrence is a new disease complex. A nationalized heart association is needed to exert influence on many of the broader and social questions involved.

Arkansas Medical Society Journal, Little Rock

20: 85-95 [illegible] 1923

Chronic Hyperchlorhydria; Bedside Diagnosis and Treatment. E. L. Miller, Crossett.—p. 85.
Auto Camping Trip as Vacation for the Doctor and His Family. T. Cothern, Jonesboro.—p. 88.

Atlantic Medical Journal, Harrisburg, Pa.

27: 1-54 (Oct.) 1923

Medical Care of Rural Population. E. C. [illegible], [illegible], Pa.—p. 1.
Experience with Insulin in Treatment of Diabetes Mellitus. J. A. Lichty, Pittsburg.—p. 5.
Cancer Problem. H. L. Foss, Danville, Pa.—p. 11.
*Carcinoma of Breast. J. S. Rodman, Philadelphia.—p. 13.
Mental Medicine of Yesterday, Today and Tomorrow. E. [illegible], Danville, Pa.—p. 16.
Cavernous Sinus Thrombosis. [illegible], Philadelphia.—p. 19.
Aids in Diagnosis of Skin Diseases. S. S. Greenbaum, Philadelphia.—p. 21.
Simplification of Serologic Diagnosis of Syphilis. [illegible], Los Angeles.—p. 23.
Treatment of Appendiceal Peritonitis. E. P. [illegible], Pittsburgh.—p. 25.
Diagnosis and Treatment of Diseases of [illegible]. F. C. [illegible], Reading, Pa.—p. 27.
Prenatal Care in Philadelphia. [illegible], Philadelphia.—p. [illegible]

Carcinoma of Breast.—Rodman emphasizes points that every one should keep in mind: cancer of the breast is a curable disease if radical treatment can be instituted sufficiently early. There are definite "precancerous" conditions of the breast of which chronic mastitis and papillary cystadenoma are the most important. Fifty per cent. of the cases of definite carcinoma can be cured by proper radical treatment, but not over 30 per cent. can be cured when the clinical diagnosis can be made with certainty.

Boston Medical and Surgical Journal

189: 485-530 (Oct. 11) 1923

Case of Marked Hypertension in Boy of Fourteen Associated with Congenital Hydronephrosis and Nephritis. W. C. Quinby, Boston.—p. 485.
Case of Cancer of Prostate Relieved by Radium. R. Graves, Boston.—p. 486.
Urologic Aspects of Hemophilia. J. D. Barney, Boston.—p. 486.
Early Hydronephrosis Associated with Aberrant Arteries. E. G. Crabtree, Boston.—p. 505.
Four Cases of Favus in One Family. J. H. Swartz, Boston.—p. 507.
Work of School Physician. D. S. Luce, Canton, Mass.—p. 510.
Milk and Public Health. J. Garland, Boston.—p. 513.

189: 531-580 (Oct. 18) 1923

*Infectious (Catarrhal) Jaundice. C. M. Jones and G. R. Minot, Boston.—p. 531.
*Alcohol Check Experiments with Portable Respiration Apparatus. T. M. Carpenter and E. L. Fox, Boston.—p. 551.
Fallacy of Using Alcohol for Sterilization of Surgical Instruments. R. N. Nye and T. B. Mallory, Boston.—p. 561.
Milk and Public Health. J. Garland, Boston.—p. 563.

Infectious Jaundice.—Twenty-six cases of infectious jaundice have been studied critically by Jones and Minot. Additional observations have been made on a number of other cases. The studies indicate that the jaundice may be separated into two rather distinct phases. Early in the disease there is usually an obstructive phase in which the duodenal contents contain little or no bile. The second phase is marked by an abnormally large output of bile pigment into the intestine. Rapid clinical improvement, with decrease of the jaundice, approximately coincides with the period of greatest elimination of bile pigments into the duodenum. Jaundice of the skin and sclerae may last for months, but disappears days or weeks before the bile pigments reach their normal level in the blood and duodenal contents.

Alcohol Check Experiments with Portable Respiration Apparatus.—Carpenter and Fox recommend that with the Benedict and Collins portable respiration apparatus the correction for change in temperature of the bell be made on the whole contraction as a rise of 12 mm. per degree centigrade; and that Wilson soda lime be employed as the absorbent for carbon dioxid and the assumption be made, in calculating the results, that the air in the spirometer bell is completely saturated. Users of the Roth modification of the Benedict and Collins portable apparatus should calculate their results on the basis that the air is dry when the ordinary soda lime is used and employ Roth's correction of minus 2 per cent. when Wilson soda lime is the reagent for absorbing the carbon dioxid; and that the correction for temperature be made on the whole contraction as directed by Roth, namely, 6.5 mm. per degree centigrade. Whether the ordinary soda lime or the Wilson soda lime is used with the student apparatus of Benedict and Benedict, the calculations should be made on the basis that the gas is in a dry condition.

California State Journal of Medicine, San Francisco

21: [illegible] (Oct.) 1923

Otitis Media in Infants and Children. [illegible]—p. [illegible]
Local Anesthesia in Major Surgery. [illegible]—p. [illegible]
Therapeutic Aspect of Short Wave Roentgen Rays. [illegible], Los Angeles.—p. [illegible]
Heart Failure. [illegible], San Francisco.—p. [illegible]
[illegible]
Etiology of Cancer and Leukemia. [illegible], San Francisco.—p. [illegible]
Analysis of Four Thousand Cases of [illegible]. [illegible], Los Angeles.—p. [illegible]
*Roentgen Ray Treatment of Whooping Cough. [illegible] and [illegible], San Francisco.—p. [illegible]
[illegible]

Roentgentherapy of Whooping [illegible] pertussis patients subjected to [illegible]

Kingston and Faber, four showed remarkable improvement after the initial treatment, while two were not relieved even after three exposures. Ten of the remainder were markedly better after two treatments, the vomiting and, in most instances, the typical paroxysms stopping. The other eight showed a more gradual improvement but were not considered cured after the last treatment. The most constant effect of the roentgen ray was the prompt cessation of vomiting, which occurred even in those cases in which the whoop did not abate.

Canadian Medical Association Journal, Montreal

13: 703-780 (Oct.) 1923

What of Future Surgery? D. Cheever, Boston.—p. 703.
Vertigo and Its Significance in General Medicine. R. S. Pentecost, Toronto.—p. 708.
Effect of Ether Anesthesia on Afferent Paths in Decerebrate Animals. A. Forbes and R. H. Miller, Boston.—p. 715.
Anesthesia and Analgesia in Labor. R. Mitchell, Winnipeg.—p. 718.
Diagnosis of Diseases of Stomach and Duodenum. H. A. Bruce, England.—p. 724.
Serous Meningitis of Otitic Origin. E. H. White, Montreal.—p. 730.
School Health Supervision in Rural and Urban Centers. J. T. Phair, Toronto.—p. 733.
Chronic Myocardial Disease. J. A. Macgregor, London.—p. 738.
*Origin of Ammonia in Urine. I. M. Rabinowitch, Montreal.—p. 742.
Idiopathic Menorrhagia and Roentgen-Ray Therapy. E. L. Stewart and H. M. Tovell, Toronto.—p. 745.
Diagnosis of Pulmonary Tuberculosis. A. H. W. Caulfield, Toronto.—p. 749.

Origin of Ammonia in Urine.—Data have been obtained clinically by Rabinowitch which support the view recently put forward that one function of the kidney is to form ammonia.

Colorado Medicine, Denver

20: 255-302 (Oct.) 1923

London Meeting of International Surgical Association. L. Freeman, Denver.—p. 260.
Treatment of Syphilis of Central Nervous System. A. L. Skoog, Kansas City.—p. 266.
Diagnosis in Right Sided Abdominal Pain. J. M. Mayhew and A. L. Smith, Lincoln, Neb.—p. 275.

Indiana State Medical Association Journal, Ft. Wayne

16: 325-358 (Oct.) 1923

Our Medical Profession and Its Achievements. C. H. Good, Huntington.—p. 325.
Surgery and Surgery Technic. F. T. Romberger, Lafayette.—p. 329.
Radical Cure of Cystocele. C. M. Mix, Muncie.—p. 333.
Physiotherapy. W. W. Carey, Ft. Wayne.—p. 335.

Journal of Industrial Hygiene, Boston

5: 189-244 (Oct.) 1923

Placing Cardiac Patients in Regular Industries. J. S. Sheppard.—p. 189.
Weber's Law, Tolerance and Visual Judgment of Size in Bottle Making Industry. J. P. Baumberger and E. E. Perry, Stanford University, Calif.—p. 205.
Medical Features of Factory Inspection. Review of Literature on Industrial Hygiene and Industrial Disease in Germany in 1922. L. Teleky, Düsseldorf.—p. 210.
*Dusted Lung. Inhalation of Silica Dust; Relation to Pulmonary Tuberculosis. B. S. Nicholson.—p. 220.

Effect on Lung of Inhalation of Dust.—Nicholson's review brings out these facts: All dusts are not equally harmful—e. g., coal is especially beneficial, lime is neutral, but silica is particularly injurious. Silica, owing to the formation of pulmonary fibrosis, causes a train of symptoms which can be distinguished clinically from those of pulmonary tuberculosis. For this purpose radiography is of great use. The evidence of the injurious character of silica dust is drawn chiefly from industrial mortality statistics in which all forms of phthisis are taken together. Statistical evidence from all parts of the world agrees on this point; and there is no evidence that any other factor beyond the inhalation of silica is the responsible agent. Careful consideration of the disease entity, pulmonary silicosis, of its slow development and clinical manifestations, and of its noninfective character, point to the conclusion that more persons than is generally thought die without becoming tuberculous. The low infectivity of cases of pulmonary fibrosis is probably due (*a*) to the fact that many cases are never tuberculous at all, and (*b*) to the rapid termination of open infective cases, leaving but a short period for infecting contacts. Nicholson feels that the terminology appearing today on death certificates is faulty; the cases should be described as (*a*) pulmonary fibrosis, and (*b*) tuberculosis (if present). The term "phthisis" is unsatisfactory and should be expunged.

Kansas Medical Society Journal, Topeka

23: 269-302 (Oct.) 1923

Arterial Hypertension. L. S. Milne, Kansas City.—p. 269.
Anemias. J. L. Lattimore, Topeka.—p. 272.
Symptomatology and Diagnosis of Acute Poliomyelitis. C. F. Menninger, Topeka.—p. 274.
Treatment of Poliomyelitis. K. A. Menninger, Topeka.—p. 278.

New Jersey Medical Society Journal, Orange

20: 325-376 (Oct.) 1923

Diagnosis of Pulmonary Tuberculosis. M. W. Newcomb, Brown's Mills, N. J.—p. 325.

New Orleans Medical and Surgical Journal

76: 169-214 (Oct.) 1923

Diagnosis and Treatment of Tumors of Spinal Cord, Involving Conus and Cauda Equina. W. O. Ott and A. W. Adson, Rochester, Minn.—p. 169.
*Renal Lesions Due to Ureteral Obstructions Other Than Calculus. H. W. E. Walther, New Orleans.—p. 172.
Preeclamptic Toxemia. E. L. King and A. H. Gladden, Jr., New Orleans.—p. 175.
*Duodenal Dilatation. Report of Cases. A. Levin, New Orleans.—p. 178.
Observations from Service of Newly-Born at Touro Infirmary. L. R. DeBuys, New Orleans.—p. 184.
Charity Hospital of Louisiana. A. E. Fossier.—p. 188.
Digitalis in Heart Failure. J. B. Guthrie, New Orleans.—p. 196.

Kidney Lesions Due to Noncalculous Obstruction.—On the basis that too many kidneys are being sacrificed needlessly, Walther suggests that, unless expediency demands it, nephrotomy be done reserving nephrectomy for the second stage operation when simple drainage fails.

Duodenal Dilatation.—In Levin's opinion, duodenal dilatation is often responsible for the symptoms of so-called vicious circle after gastro-enterostomy and other conditions, such as reversed peristalsis. In his opinion, reversed duodenal peristalsis is the primary cause of so-called "heartburn."

New York State Journal of Medicine

23: 397-434 (Oct.) 1923

Studies in Use of Insulin. J. J. R. Macleod, Toronto.—p. 397.
Treatment of Diabetes With and Without Insulin. E. P. Joslin, Boston.—p. 399.
Insulin Treatment of Diabetes Mellitus. J. R. Williams, Rochester, N. Y.—p. 402.
*Relative Immunity of Infants Under Five Months of Age to Infection with Measles. C. Herrman, New York.—p. 404.
*Congenital Diaphragmatic Hernia of Right Side; Its Diagnosis in Life. P. M. Stimson, New York.—p. 408.
Common Drug Eruptions. J. J. Eller, New York.—p. 415.
Periodic Examination of Well Children. R. M. Smith, Boston.—p. 419.
Occurrence of Gonococcic Vaginitis in New-Born. E. J. Wynkoop, Syracuse.—p. 421.

Immunity of Infants to Measles.—Herrman says that infants under 2 months of age, whose mothers have had measles, are immune; the immunity becomes less marked as they grow older, but that even at 4 or 5 months of age only 25 per cent. are infected. From that time the relative immunity quickly diminishes, so that infants over 9 months of age are as susceptible as older children. Artificially fed as well as breast-fed infants enjoy this immunity, with a slight difference in favor of the breast-fed infants. This relative immunity during the first months of life also manifests itself in other ways. When young infants are infected with measles, the incubation period may be longer, the fever and constitutional symptoms may be less marked, and the eruption, the catarrhal symptoms and buccal manifestations may be less distinct. The immune substances are probably chiefly conveyed to the fetus through the placental circulation. There is no substantial evidence that any important part of the immunity is due to the ingestion of breast milk.

Congenital Diaphragmatic Hernia.—Stimson reports a case of this sort occurring in a 11 months old baby. The heart and liver were found apparently in normal positions, and so were the pyloric and cardiac ends of the stomach. But the greater curvature of the stomach had been pulled over to the right and some of the wall had been sucked up into the right chest cavity. A fluoroscopic examination showed the entire stomach in the chest, but there was apparently no obstruction to its emptying.

Ohio State Medical Journal, Columbus

19: 705-768 (Oct.) 1923

Exophthalmic Goiter. H. M. Korns, Cleveland.—p. 709.
Roentgen-Ray Therapy in Toxic Hyperthyroidism. H. K. Dunham, Cincinnati.—p. 713.
Surgery of Thyroid. E. R. Arn, L. G. Bowers and H. R. Huston, Dayton.—p. 717.
Treatment of Fracture of Lower End of Radius (Colles). B. G. Chollett, Toledo.—p. 728.
Nephrotomy. J. A. H. Magoun, Toledo.—p. 730.
Conservative Treatment of Maxillary Sinus Disease. J. D. Fouts, Dayton.—p. 732.

Philippine Journal of Science, Manila

23: 309-405 (Oct.) 1923

Some Philippine Species of Genus Musca Linnaeus. W. S. Patton.—p. 309.
Composition of Cashew Nut Oil. A. P. West and C. C. Cruz.—p. 337.
Jassoidea Related to Stenocotide. Malayan Species. C. F. Baker.—p. 345.

Rhode Island Medical Journal, Providence

6: 147-162 (Oct.) 1923

Diathermy in Pneumonia. H. E. Stewart, New Haven, Conn.—p. 151.

Surgery, Gynecology and Obstetrics, Chicago

37: 429-578 (Oct.) 1923

*Radical Operation for Teratoma Testis. F. Hinman, T. E. Gibson and A. A. Kutzmann, San Francisco.—p. 429.
Fractures of Elbow Joint and of Lower End of Humerus. E. L. Gilcreest, San Francisco.—p. 452.
Acute (Puerperal) Inversion of Uterus. E. Evans, La Crosse, Wis.—p. 461.
*Chemical Changes in Blood of Man After Acute Intestinal Obstruction. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 465.
*Retroperitoneal Lipoma. L. A. Greensfelder and R. B. Bettman, Chicago.—p. 468.
Sarco-Carcinoma of Uterus. R. H. Jaffe, Chicago.—p. 472.
Case of Bilateral Congenital Total Absence of Fibulae. J. J. Nutt, New York.—p. 475.
*Surgery of Seminal Vesicles. Report of 135 Cases. J. H. Morrissey and F. W. Smith, New York.—p. 480.
Metastatic Hypernephroma. Bone Metastasis. A. Gibson, Winnipeg, Man., and J. C. Bloodgood, Baltimore.—p. 490.
Intra-Abdominal Adhesions. J. B. Deaver, Philadelphia.—p. 506.
Collateral Circulation in Chronic Obstructon of Pulmonary Veins. Relation to Air Embolism Following Various Diagnostic and Therapeutic Procedures (Pneumolysis). K. Schlaepfer, Baltimore.—p. 510.
Reduction of Fractures with Fluoroscope. E. L. Eliason, Philadelphia.—p. 521.
Congenital Facial Clefts. V. P. Blair, St. Louis.—p. 530.
Rupture of Urethra. J. H. Garlock, New York.—p. 533.
New Gastro-Enterostomy Clamp. C. A. Roeder, Omaha.—p. 538.

Radical Operation for Teratoma Testis.—Seventy-nine cases of the radical operation for teratoma testis have been collected by Hinman and his associates. Ten of these were personal cases. Comparison of results of simple castration and radical operation shows, even at this early date for the latter, an improvement in the prognosis of at least 100 per cent. since about 15 per cent. of cases are cured by simple castration, and at least 30 per cent. of the seventy-nine cases analyzed are found to have been cured by the radical operation.

Chemical Blood Changes in Acute Intestinal Obstruction.—Haden and Orr state that definite blood chemical changes are found in acute intestinal obstruction, manifested by a fall in the blood chlorids, often a rise in the carbon dioxid combining power of the plasma and a rise in the nonprotein nitrogen. The fall in chlorids is considered the chief factor of this change and indicates that the chlorids may be utilized by the body as a protection against the toxic agent. The administration of sodium chlorid in larger doses than that supplied by physiologic solution of sodium chlorid is indicated in acute intestinal obstruction as a means of directly combating the toxemia. Since alkalosis is frequently present in intestinal obstruction, alkalies should be administered with caution. The authors have estimated that in the presence of the toxemia of intestinal obstruction sodium chlorid in an initial dosage of 1 gm. per kilogram of body weight should be administered. The blood and urine chlorids should be closely followed to estimate the subsequent quantity of sodium chlorid needed to keep the blood chlorids at a normal level.

Retroperitoneal Lipoma.—Retroperitoneal lipomas are most apt to occur in elderly persons and usually in women. The symptoms are vague and varied, swelling of the abdomen being the most constant. The prognosis is poor. The operative mortality is about 15 per cent. as a result of the likelihood of injury to the large abdominal blood vessels. Recurrences are frequent. The tumor may be pure lipoma but is apt to be a mixed tumor; sarcomatous degeneration is likely to occur. The tumor may arise from almost any retroperitoneal location but most frequently has its origin in the pararenal fat. Clinical diagnosis is difficult.

Surgery of Seminal Vesicles.—Morrissey and Smith assert that in their large series of cases with bacteriologic findings, the improvements noted in a large proportion of the cases justify the establishment of the operation and its more frequent use in selected cases.

U. S. Naval Medical Bulletin, Washington, D. C.

19: 393-650 (Oct.) 1923

Roentgenologic Study of Infectious Arthritis. F. W. Muller.—p. 393.
*Antimalarial Campaign in Haiti. A. H. Allen.—p. 402.
Malaria Parasite in Haiti. R. B. Storch.—p. 407.
*Samoan Conjunctivitis. D. Hunt.—p. 410.
Blackwater Fever. G. E. Robertson and W. Moore.—p. 413.
Experiences with Malaria Among Natives of Haiti. R. B. Storch.—p. 415.
Amebic and Bacillary Dysentery. J. G. Smith.—p. 423.

Antimalaria Campaign in Haiti.—The results of an eight months' campaign against malaria in Haiti, although limited in scope, Allen says, has demonstrated that it is possible to reduce malaria in a highly malarial country by the administration of quinin as described by Bass, even though restricted to relatively small areas.

Samoan Conjunctivitis.—Hunt's study of cases has furnished evidence that Samoan conjunctivitis is due to a gram-negative diplococcus, in all probability an attenuated form of the gonococcus.

West Virginia Medical Journal, Huntington

18: 169-224 (Oct.) 1923

Surgery of Gallbladder. Analysis of 100 Consecutive Operations. W. H. St. Clair and R. O. Rogers, Bluefield.—p. 169.
Diagnosis of Surgical Conditions of Kidney and Ureter. B. S. Brake, Clarksburg.—p. 176.
Diagnosis and Treatment of Renal Calculus. J. E. Rader, Huntington.—p. 182.
Fourth or Physiologic Era in Surgery. R. T. Morris, New York.—p. 189.
Mental Healing and Other Cults. H. M. Hall, Wheeling.—p. 197.

Wisconsin Medical Journal, Milwaukee

12: 193-244 (Oct.) 1923

Aids to Diagnosis in Medicine. H. E. Tuley, Louisville.—p. 193.
*Present Status of Management of Diabetes Mellitus. H. M. Coon, R. L. Gilman, W. M. Middleton, O. V. Overton and E. L. Sevringhaus, Madison.—p. 202.
Surgical Judgment. J. H. Gibbons, Philadelphia.—p. 208.
Malign Cellular Malfunction. J. L. Yates, Milwaukee.—p. 211.
*Some Difficulties in Diagnosis of Chronic Gallbladder Disease. D. Fisher and M. W. Snell, Milwaukee.—p. 215.
Insulin Treatment in Postoperative (Nondiabetic) Acidosis. D. Fisher and M. W. Snell, Milwaukee.—p. 220.

Diet Essential in Treatment of Diabetes.—That the introduction of insulin has in no way reduced the dietetic limitations of the diabetic is emphasized by Coon and his associates. While the range and variety of food may be greatly enhanced by the exhibition of insulin, the tendency of physicians to treat the newer biologic product as a short cut in management of diabetes is unjustified.

Insulin Causes Disappearance of Acidosis.—Fisher and Snell report an instance in which hypodermic administration of insulin, together with intravenous injection of glucose, caused the disappearance of severe acidosis in twelve hours in a nondiabetic patient operated on for gangrenous appendicitis.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 739-790 (Oct. 27) 1923

Relations of Surgery and Physiology. E. S. Schafer.—p. 739.
Chronic Intestinal Stasis and Cancer. W. A. Lane.—p. 745.
Present Position of Vitamin Problem. F. G. Hopkins.—p. 748.
*Regulating and Reflex Process. IV. Nerve Centers. P. T. Herring.—p. 751.
*Report of Three Necropsies Following Carbon Tetrachlorid Treatment. J. F. Docherty and L. Nicholls.—p. 753.
Factors Contributing to Recent Decrease in Infantile Mortality. J. Wheatley.—p. 754.
*Value of Watercress as Food. H. Scurfield.—p. 759.
Effect on Health of Sewer Air and Drain Air. F. E. Wynne.—p. 760.
Carbon Monoxid Predisposing Cause of Pulmonary Tuberculosis. E. B. Hazleton.—p. 763.

Sensation and Reflex Action.—Herring points out that sensation and reflex action are closely bound up together. Even visceral reflexes may be productive of sensation. Alterations in the heart beat, palpitation, respiratory disturbances, vasoconstriction and vasodilatation give rise to subjective phenomena. Irritability, exhaustion and depression are of common occurrence in ill health. The fatigue of a synapse renders that synapse more resistant to the passage of a nerve impulse, and fatigue of the afferent pathways should be a negation. But fatigue and the sensations met with in ill health are positive sensations and not mere negations. They are, as a rule, general and not localized to any particular part. Their cause is unknown, but must be sought in some alteration in the afferent nerve impulses affecting the conscious state.

Carbon Tetrachlorid Causes Fatty Liver.—With the object of confirming the report that carbon tetrachlorid may produce pathologic lesions of the liver, a number of condemned prisoners were treated with small doses of the drug. Postmortem examinations were made by Docherty and Nicholls on three of the prisoners. Each prisoner received 4 c.c. of carbon tetrachlorid, followed in two hours by 2 ounces of saturated magnesium sulphate solution. In two cases the liver showed fatty degeneration. In the third case there were no changes in the liver or kidney.

Watercress a Valuable Food.—Scurfield urges the greater use of watercress, which contains all three vitamins, as a food. Watercress is a cheap green vegetable which, like lettuce, is eaten unspoiled by cooking, but which, unlike lettuce, is available all the year round. Its more extended use may, therefore, be an appreciable help in remedying dietary errors caused by urbanization.

Journal of Pathology and Bacteriology, Edinburgh

26: 433-556 (Oct.) 1923

Organisms of Fowl Typhoid Group. R. S. J. Brooks and M. Rhodes.—p. 433.
*Vitamins and Bacteria Growth. G. W. Wyon.—p. 441.
*Diphtheria Toxin Production on Douglas Medium. A. F. Watson and U. Wallace.—p. 447.
*Structure of Thyroid in Man. G. S. Williamson and I. H. Pearse.—p. 459.
Healing of Uterine Wound: Mitosis in Unstriped Muscle. D. M'Intyre.—p. 471.
Primary Liver Cell Adenoma (Hepatoma). A. F. B. Shaw.—p. 475.
Relation of Deprivation of Vitamin B to Body Temperature and Bacterial Infection. G. M. Findlay.—p. 487.
Composition of Bacillus Welchii Toxin. H. Henry.—p. 497.
*Pathogenesis of Primary Pneumococcal Peritonitis. J. E. M'Cartney.—p. 507.
Presence of Heterophile Antigen in Bacteria; Shiga's Dysentery Bacillus; Forssman Antigen and Antibody. T. Iijima.—p. 519.
*Cutaneous Hypersensitiveness in Enteric Infections; Enteric Carriers. W. M'Kendrick.—p. 535.
Neuroblastoma of Thoracic Cavity. J. S. Anderson and T. Shennan.—p. 545.
Leukocytosis in Myeloid Leukemia. A. Piney.—p. 546.

Vitamin B and Bacterial Growth.—Evidence is given by Wyon that vitamin B does not favor the growth of bacteria. Attention is drawn to certain factors in complex organic materials which are or may be responsible for their value for bacteria.

Diphtheria Toxin Production on Douglas Medium.—The value of the medium prepared by Hartley's modification of Douglas' method for preparing high grade diphtheria toxin over long periods of time is demonstrated by Watson and Wallace. Two methods which have given satisfaction over a period of a year for the large scale preparation of this medium are given. This medium is of value for ordinary routine purposes and would appear to afford an efficient, inexpensive and readily prepared substitute for ordinary peptone medium.

Structure of Thyroid in Man.—The thyroid organ has been shown by Williamson and Pearse to contain a definite functional unit, of which the vesicle of the literature forms no fundamental part. The functional unit is a lymphatic sinusoid, in which the epithelium floats enmeshed in a specific plexus of capillaries. The secretion of the thyroid organ is produced and stored in a specific fashion. It is not the same as colloid. Colloid matter is stored after another manner; it is possibly a vehicle for the carriage of some metabolite.

Pathogenesis of Primary Pneumococcal Peritonitis.—M'Cartney asserts that primary pneumococcal peritonitis affects only females and the infection reaches the peritoneum from the vagina.

Cutaneous Hypersensitiveness in Enteric Infections.—A method of testing for hypersensitiveness of the skin to organisms of the typhoid group is described by M'Kendrick and the criterion of a positive reaction is defined. According to the procedure employed, positive reactions were constantly obtained in patients suffering from enteric fever and in chronic carriers. The test appears to be highly specific. There is no correspondence between the result of the skin test and the presence of pyrexia in acute cases, or between the skin test and the Widal reaction in carriers. The results indicate that early in convalescence from enteric fever the skin test becomes negative. It is suggested that patients who are convalescing from enteric fever should be examined for the skin reaction. A positive skin reaction in persons apparently in good health suggests that they are enteric carriers.

Lancet, London

2: 865-914 (Oct. 20) 1923

Wisdom of the Body. E. H. Starling.—p. 865.
Early Treatment of Mental Disorder. J. G. P. Phillips.—p. 871.
*Acute Bacillus Coli Infection of Gastro-Intestinal Tract. R. Chalmers.—p. 874.
*Treatment of Sprue. H. H. Scott.—p. 876.
Congenital Dislocation of Hip: A New Apparatus. J. Gilmour.—p. 879.
High Blood Pressure. E. M. Brockbank.—p. 880.
Village Settlements for Consumptive. Economics of Training. C. Varrier-Jones and C. Allbutt.—p. 912.

Colon Bacillus Infection of Gastro-Intestinal Tract in Infants.—Chalmers believes that many of the gastrointestinal disturbances of early infancy are the result of toxemia in the mother acting on the fetus in utero. Early jaundice, flatulence, vomiting and difficulty in finding a suitable diet are always more in evidence in children of mothers who were in a toxic state during pregnancy than in others. Whether the infection is antenatal, natal, or postnatal it is often difficult to say; all three seem to be possibilities. A streptococcus infection is often combined with a *Bacillus coli* infection in the mother in these cases—the streptococcal infection being primary and the *B. coli* infection secondary. That the uterine discharge contains streptococci and colon bacilli shows the possibility of the child becoming infected with mucus in its sojourn in the maternal passages.

Calcium Lactate and Parathyroid Extract for Sprue.—An excessive protein diet (in India, Ceylon, and other parts of the East), or a diet containing an excess of fat, largely contributed to by the method of cooking the food, Scott regards as factors in the production of sprue. The treatment he uses consists of calcium lactate, 10 grains three times daily, and 1⁄10 grain parathyroid extract twice daily.

Tubercle, London

5: 1-56 (Oct.) 1923

Progress of Surgery of Lungs and Pleural Cavity. H. M. Davies.—p. 1.
Anesthesia in Thoracic Surgery. L. W. Shelley.—p. 13.
Thoracic Suppuration and New Growths.—p. 22.

Bulletin Médical, Paris

37: 1001-1012 (Sept. 1) 1923

*Examination of the Diaphragm. C. Achard and L. Binet.—p. 1003.
Raynaud's Disease. Laignel-Lavastine.—p. 1004.
Treatment of Cardiac Insufficiency. J. Walser.—p. 1006.

Examination of the Diaphragm.—Achard and Binet discuss the methods of examining the movements of the diaphragm. The abdominal (diaphragmatic) type of respiration in men and the thoracal in girls are secondary sexual characters which develop very early; they can be easily observed in crying nurslings. The normal protrusion of the abdomen during inspiration and the rocking aspect of the expanding thorax and contracting abdomen in paralysis of the diaphragm are familiar. Another type of this alternating or rocking movement occurs sometimes in ascending paralysis, when the muscles of the chest are already affected, while the diaphragm is working normally. In such cases the thorax is depressed during inspiration; while the abdomen expands. In doubtful cases, Paillard's test may be of value. The hand is applied on the navel, the fingers under it, and the physician presses the viscera against the diaphragm. If there is no organic or functional (juxtadiaphragmatic inflammations) paralysis of the diaphragm, the hand feels its inspiratory pressure after five to fifteen seconds. Hess' reflex consists in the retraction of the xiphoid process by the retrosternal fibers of the diaphragm when the nipple or its region is tickled. Radioscopy gives, of course, the best information about the diaphragm.

Lyon Médical

132: 725-768 (Aug. 25) 1923

*Masked Lesions of Semilunar Cartilages. L. Tavernier.—p. 725.
Streptococcal Thyroiditis. J. Rebattu and R. Gaillard.—p. 729.

Masked Lesions of Semilunar Cartilages.—Tavernier discusses lesions of the semilunar cartilages of the knee, which are not extensive enough to cause the characteristic impossibility of full extension. These forms present sometimes as recurring hydrarthrosis; sometimes they are diagnosed as sprains, though there is no reason for their recurrence. A "rheumatic" pain localized always at the same spot, in one joint, is not rheumatic. Walking increases it, rest and sedatives abolish it. Ablation of the diseased cartilage cures the condition.

Progrès Médical, Paris

433-444 (Sept. 1) 1923

*Infected Gastric Ulcers. F. Ramond.—p. 433.
Sympathetic Syndromes. Laignel-Lavastine.—p. 434.
Calculus in Common Bile Duct. Delbet.—p. 437.
Treatment of Encephalitis with Blue Colloidal Gold. Weinberg.—p. 440.

Infected Gastric Ulcers.—Ramond exposes the danger of operations in cases of infected gastric ulcers. Infection is the cause of recurrences of ulcers, and it may be most marked in hypacidity of the stomach, because the acid juice acts as an antiseptic. Severe infections cause violent pains with dorsal irradiations and vomiting, and they end frequently with hematemesis, which brings relief. Bicarbonates do not attenuate the pains in many such cases. The treatment consists in absolute rest and external application of ice.

Schweizerische medizinische Wochenschrift, Basel

53: 833-856 (Sept. 6) 1923

Radiotherapy of Dermatoses. Du Bois.—p. 833.
Radium in Dermatology. A. Lassueur.—p. 836.
*Bacteriology of Lochia. C. Meili.—p. 842.
*Heredity of Anomalies of Eye Refraction. W. Jablonski.—p. 846.

Bacteriology of Lochia.—Meili examined in infected abortions the uterine secretion (not the vaginal) for the presence of aerobic and anaerobic streptococci and liquefying staphylococci. If they are absent, there is no danger in immediate evacuation of the uterine cavity. If they are present, he treats conservatively as long as the fever lasts.

Heredity of Anomalies of Eye Refraction.—Jablonski considers—in spite of his small material—myopia as a hereditary recessive character.

Annali di Nevrologia, Naples

40: 65-193 (Aug. 31) 1923

*Instincts and Neuroses. F. Baldi.—p. 65.
*Postencephalitic Parkinsonism. L. R. Sanguineti.—p. 87.
Lesions of Conus Medullaris and Cauda Equina. A. M. Coen.—p. 146.

Instincts and Neuroses.—Baldi considers the traumatic war neurosis a clear example of the working of a "defense instinct." Mental health depends on an equilibrium between the instinctive tendencies and the forces which control them. The neurosis is an expression of predominance of the biologically older instinctive forces over the more recent higher psychic qualities.

Postencephalitic Parkinsonism.—Sanguineti found that the mental functions of the patients with postencephalitic parkinsonism, whom he examined, were not injured qualitatively, but only quantitatively. The psychic processes are sluggish and easily fatigued.

Pediatria, Naples

31: 857-912 (Aug. 15) 1923

*Micro-Organism of Scarlet Fever. M. B. Sindoni.—p. 857.
*Wassermann Reaction in Human Milk. M. Cotellessa.—p. 860.
Action of Roentgen Rays on Respiratory Metabolism in Tuberculous Children. A. Corica.—p. 868.
Grancher's Splenopneumonia. A. de Capite.—p. 881.
Intradermal Reaction in Pertussis. G. Garzia.—p. 890.
Sarcoma of Superior Epiphysis of Tibia. N. Caprioli.—p. 893.

Micro-Organism of Scarlet Fever in the Eruption and in the Scales.—Sindoni placed scales from scarlet-fever patients in salt solution, and incubated them for twelve to twenty-four hours. She found then the micro-organisms described by Di Cristina, Caronia and herself in scarlet fever. The diplococcic forms were gram-positive. Inoculation of Tarrozzi-Noguchi media with filtrates induced the same turbidity, with few visible micro-organisms, as the inoculation of blood in their former experiments (mentioned in these columns Sept. 8, 1923, p. 864).

Wassermann Reaction in Human Milk.—Cotellessa examined the milk from eighty-nine syphilitic and twenty-one nonsyphilitic mothers. The Wassermann reaction with 0.5 and 1 c.c. of milk gave parallel results with the serum. He followed Rusca's technic (removing fat by centrifugation, avoiding inactivation).

31: 913-968 (Sept. 1) 1923

Amebic Dysentery in Young Children. S. Maggiore.—p. 913.
*Splenic Anemia in Infants. L. Auricchio.—p. 922.
*Luetin Tests in Inherited Syphilis. S. de Villa and A. Ronchi.—p. 938.
Postdiphtheric Paralysis. C. Benedetti.—p. 950.

Splenic Anemias of Infants.—Auricchio studied in infants the leukocytosis following injections of epinephrin and sodium nucleinate. He injected intramuscularly 20 cg. of nucleinate or 1 c.c. of a 0.1 per cent. solution of epinephrin in children under 2 years, and 30 cg. or 1.5 c.c. in older children. Four healthy children had an average increase of 3,000 leukocytes (mostly neutrophils, with a few younger cells) in three hours after the injection. In five cases of leishmaniasis, there were no changes; two tuberculous children had less of a reaction than the healthy ones, while in seven syphilitics the increase was very pronounced and prolonged, and numerous immature leukocytes and erythrocytes appeared.

Luetin Tests in Inherited Syphilis.—De Villa and Ronchi performed the intradermal luetin test and the Wassermann test in seventy-nine children with inherited syphilis, and in fifty controls. The luetin reaction was negative in some syphilitic children with a positive Wassermann reaction, but it was positive in other cases of certain syphilis with a negative Wassermann reaction.

Policlinico, Rome

30: 1153-1183 (Sept. 3) 1923

*Thermoprecipitation in Renal Tuberculosis. V. Jura.—p. 1153.
Typhoid Infection without Intestinal Focus. G. Belloni.—p. 1163.

Thermoprecipitation in Renal Tuberculosis.—Jura performed thermoprecipitation tests for tuberculosis in the urine of ninety-four patients. He followed Wiget's technic (boiling the sediment with an equal part of urine for two to three minutes, and filtering). Later he added a double or triple amount of salt solution instead of the urine, thus avoiding mistakes from phosphates. The test was positive in cases of tuberculosis of the kidneys, and negative in other conditions, including tuberculosis of other organs.

30: 425-484 (Sept. 1) 1923. Medical Section.

*Reflex Epilepsy. T. Pontano.—p. 425.
*Cerebrospinal Fluid in Multiple Sclerosis. Pisani.—p. 437.
Acute Paralysis in Leg in Tabes. G. Santangelo.—p. 445.
Mechanism of Colloidal Reactions in Cerebrospinal Fluid. D. Pisani.—p. 452.

Reflex Epilepsy.—Pontano's experiments on a patient suffering from a glioma of the sensorimotor zone convinced him that reflex epilepsy can be provoked only from zones in the skin corresponding to the affected parts of the cerebral cortex.

Cerebrospinal Fluid in Multiple Sclerosis.—Pisani confirms the fact that a positive colloidal (mastic) reaction may be the only biologic reaction present in the cerebrospinal fluid in epidemic encephalitis, multiple sclerosis, or syphilis and metasyphilis of the central nervous system. The protein content of such fluid is small, when compared with the intensity of the colloidal reaction. The opposite is true in all other affections of this system.

Riforma Medica, Naples

39: 841-864 (Sept. 3) 1923

The Meinicke Reaction. A. Oro.—p. 841.
*Fuchsinophil Corpuscles in Sputum. A. Zuppa.—p. 850.
Hysteria. A. Ferrannini.—p. 851.

Fuchsinophil Corpuscles in Sputum.—Zuppa confirms the presence of acid-fast corpuscles in the sputum of tuberculous patients. The corpuscles are of different sizes. Decoloration with a 20 per cent. alcoholic solution of lactic acid for two minutes differentiates them from similar corpuscles in nocardiosis, which are not so resistant.

Archivos Españoles de Pediatría, Madrid

7: 385-448 (July) 1923

*Sarcoma of the Fibula. J. Ricsalido.—p. 385.
*Variations in Weight in Children. C. Sainz de los Terreros.—p. 392.
*Presclerosis of the Tympanum. A. Martin Calderin.—p. 398.

Sarcoma of the Fibula.—The leg of the girl, aged 8, had been enlarging for a year; roentgen rays revealed a large central myelogenous sarcoma with the periosteum intact, although stretched to the utmost. The soft parts were intact, and the gap in the bone after resection was bridged with a strip taken from the tibia of the other leg. Bony union at each end was apparent when the plaster cast was removed after three months, and normal use of the limb was soon regained.

Abrupt Fluctuations in Weight of Children.—Normal children never present sudden and striking changes in weight. When sudden changes occur, some morbid cause must be sought. Acute intestinal disorders are usually responsible in infants. Rapid recuperation of weight does not always signify cure; it may be due to retention of water. In health, two thirds of the fluid ingested is excreted through the kidneys, and one third by the lungs, skin and intestine. In disease, this proportion is altered, and the balance of water metabolism is upset. Even if water is supplied freely to a dehydrated infant, it may not be taken up by the tissues unless it contains a little salt or carbohydrate. Retention of water realized by using a saline solution may mask the child's true condition, and may even derange kidney functioning.

Presclerosis of the Tympanum.—Martin Calderin urges the importance of early recognition of progressive deafness in children, as prompt measures may arrest the tendency to otosclerosis. The stage of curable presclerosis is brief; it is usually associated with adenoids and an inherited tendency to otosclerosis. He describes a typical case in detail in a boy, aged 8. Air conduction of sound was reduced, and high sounds were heard better than low sounds. The chain of ossicles seemed normally movable, the tympanum almost normal, and the tubes permeable. The slow and progressive nature of the deafness and the predominance of the functional over the anatomic changes justified the assumption of presclerosis. He was treated with iodin, peptone and calcium; marked improvement was evident in two months, and clinical cure was complete in four. The boy seems to have been rescued from progressive deafness, thanks to the early diagnosis and treatment. The father was totally deaf from progressive sclerosis, and the parents had been on the watch for deafness in the child.

Revista Española de Medicina y Cirugía, Barcelona

6: 365-428 (July) 1923

*Primary Tuberculous Epididymitis. Rafael Molla.—p. 365.
*Protein Therapy in Ophthalmology. P. Bufill.—p. 371.
Syphilitic Disease of Arteries. H. Rosin.—p. 381.
Chlorin Treatment of Infectious Diseases. A. Salvat y Navarro.—p. 389.

Operative Treatment of Tuberculous Epididymitis.—Molla calculates that the testis is spared in fully 80 per cent. of the cases of primary epididymitis. Radical treatment does not require more than removal of the epididymis and vas deferens, leaving intact the testis and all the vessels and nerves in the spermatic cord. The circulation of both blood and lymph is quite distinct in testis and epididymis. "With primary tuberculosis of the latter, partial operations intending to be conservative, conserve nothing but the tuberculosis. The function of the epididymis is lost by the infectious process and the partial operation as effectually as after radical epididymectomy, but the latter answers its purpose only when the vas deferens is removed in addition." Even when the seminal vesicles and the prostate are involved, these may heal after removal of the epididymis, just as the bladder heals after removal of the tuberculous kidney. In one case even the testis was invaded, but this was cauterized, and the man recovered completely under heliotherapy after removal of the epididymis and vas deferens. In 3 of his cases, erection and ejaculation proceed apparently normally although the epididymis and vas deferens on both sides were removed. In Marion's 70 cases the testis was involved in only 20 per cent., and in 6 of Molla's 11 cases. In one case there has been no recurrence of genital tuberculosis after the bilateral epididymectomy, but the right kidney has had to be removed. This organ was probably tuberculous at the time of the genital operation two years ago, but had caused no symptoms at the time.

Parenteral Protein Therapy in Disease of the Eyes.—Bufill published twenty cases in 1921, and he says that he has been growing more enthusiastic on the subject ever since. He usually injects 2 gm. of the milk, repeating this daily. The injection is made in the gluteal muscle, and suppuration has never occurred in his experience. He gives thirty case histories, and extols the prompt benefit in syphilitic papillitis, traumatic iridocyclitis, etc. In two of the cases described, enucleation would have been inevitable otherwise, but he succeeded in saving the eye in one case and in saving partial vision in the other. These patients were children; the eye had been hit with a stick.

Semana Médica, Buenos Aires

2: 41-80 (July 12) 1923

*Acute Pericarditis. A. Casaubon.—p. 41.
*Argentine Gynecology. A. Chueco.—p. 46.
Simple Apparatus for Blood Transfusion. E. L. Sabate.—p. 49.
*Secondary Hydrocephalus in Infant. J. M. Macera.—p. 52.
*Sclerccystic Ovaritis. M. Vásquez Amenábar.—p. 55.
The Infant. J. C. Navarro and F. Bazán.—p. 56. Cont'n.
Model for an Infants' Hospital. F. Schweizer.—p. 62.
Tribute to Pasteur. M. E. Pignetto.—p. 64.

Acute Pericarditis.—Casaubon remarks that few diseases have so many symptoms as pericarditis with effusion, and yet the differential diagnosis is often masked by the preceding pneumonia in infants. In older children, the pericarditis is generally of rheumatic origin, and the subsidence under treatment does not guarantee against adhesion later. In rheumatic cases, puncture is seldom necessary, but otherwise it is almost indispensable.

Progress in Operative Gynecology in Argentina.—Chueco declares that the use of clamps at abdominal operations shows that the operator is behind the times. Only very rarely and then only a single clamp should be used; the same applies to ligatures. The Argentine school, he explains, has progressed beyond this. They terminate the operation with the complete correction of conditions: Hemostasis is realized by fitting peritoneum over both layers of the broad ligament and ligating its large vessels at the same time. This leaves the ligaments and the posterior vagina in their natural position but outside of the peritoneum. The Argentine school has further perfected the technic of vaginal operations. Chueco removed harmlessly by this route the largest ovarian dermoid cyst on record, with the largest bone content. Calcagno and others correct retroversion of the uterus and prolapse by the vaginal route. Reexamination ten years ago of 200 women after colpotomy for these reasons in preceding years failed to reveal any interference with pregnancy or delivery for which the intervention by the vaginal route could be incriminated. The number of cases has much increased since then. The vesico-uterine tissue is separated through the anterior colpotomy, and the peritoneum is opened. The uterus and adnexa are then pivoted forward and outside of the vulva, and then the broad ligaments are slit to allow the round ligaments to be drawn through and sutured, shortened, to the posterior wall of the uterus. Chucco adds that the South American nations are the only ones that possess a group of operators who study the indications and the contraindications for the special mode of access in each individual case, equally skilled in abdominal and vaginal technics.

Secondary Hydrocephalus in Infant.—Necropsy cleared up the case in the infant, aged 6 months, revealing a glioma in the fourth ventricle, blocking the circulation of fluid.

Treatment of Sclerocystic Ovaritis.—After failure of other measures, Vásquez Amenábar drew the ovary out, and with the tip of the actual cautery punctured every cyst that could be palpated. In the following year 20 of the 25 patients thus treated complained of recurrence of symptoms. Since then partial resection has been tried, but recurrence soon followed in 20 of the 41 cases thus treated, but only in 20 per cent. of the 10 cases in which ligamentopexy had been done in addition. This suggested that checking the circulation might tend to prevent recurrence, and there has been nothing to suggest further disturbances in 25 of 37 thus treated, many of them more than three years ago. He ligated half of the arteries entering the hilum of the ovary, and the results confirm the assumption that congestion of the organ is the main factor in this class of lesions.

Deutsche medizinische Wochenschrift, Berlin

49: 839-870 (June 29) 1923

Tender Points in Diagnosis. Goldscheider.—p. 839. Idem. Tellgmann.—p. 843.
*Action of Drugs on Bile. A. Bickel and T. Watanabe.—p. 844.
Pathology of Jaundice. K. Retzlaff.—p. 844.
Pyuria in Children. E. Faerber and D. Latzky.—p. 847.
Osteochondritis Coxae: Coxa Plana. A. Nussbaum.—p. 849.
Colloidal Mercury in Syphilis. L. Zweig.—p. 851.
Stain for Tubercle Bacilli. F. Konrich.—p. 852.
Action of Scilla. Engelen.—p. 854.
Protein Treatment in Sinus Affection. R. Terbruggen.—p. 854.
Blood Calcium Determination. O. Strauss.—p. 855.
Radiotherapy of Tuberculosis. R. Weiss.—p. 855.
Tuberculosis in the Netherlands. Prinzing.—p. 858.
American Journals in Germany. Jürgens.—p. 860.

Action of Drugs on Secretion of Bile.—Bickel and Watanabe find that the drugs which act on the sympathetic and parasympathetic systems have little influence on bile secretion. They have a pronounced influence on the musculature of the ducts.

49: 1107-1140 (Aug. 24) 1923

*Insulin Treatment in Diabetes. O. Minkowski.—p. 1107.
Complement Fixation in Echinococcal Infection. J. van der Hoeden.—p. 1108.
*Acidity with Gastric Ulcers. D. D. Pletnew.—p. 1109.
*Gastric Ulcer. R. F. Weiss.—p. 1110.
Caseation of Glands in Axilla After Tuberculin. P. Schürmann.—p. 1110.
Sedimentation Speed in Tuberculosis. Tegtmeier.—p. 1113.
*Mechanism of Torsion of Organs. B. Tenckhoff.—p. 1115.
*"Speaking Phenomena" in Diagnosis. E. Weisz.—p. 1118.
*Pituitary Treatment. R. Klotz.—p. 1119.
Chronic Benzol Poisoning. Brücken.—p. 1120.
Electric Treatment of Neuralgia. Schurig.—p. 1121.
Treatment of Spring Conjunctivitis. Arpasi.—p. 1122.
Forceps for Transverse Position of Head. Pust.—p. 1122.
Recent Literature on Infectious Diseases. O. Moog.—p. 1123.
*Children of Minor Mothers. A. Wilsing.—p. 1125.

Insulin Treatment in Diabetes.—Minkowski, who, with Mering, discovered the diabetes that follows extirpation of the pancreas, reports his experiences with insulin. The Toronto authors have stated that in his early publications he avoided any mention of the mode of action of the pancreas. To correct this misapprehension, he quotes from his article in 1892 a sentence that refers to a "something produced by the pancreas which cooperates in the destruction of sugar."

Acidity with Gastric Ulcers.—Pletnew's material of 157 cases of gastric and duodenal ulcers demonstrates the possibility that an ulcer may develop with low acidity of the secretion. Hunger may lower the acidity, especially in cases of duodenal ulcers.

Gastric Ulcer.—Weiss finds that parenteral injections of foreign proteins are followed by a focal reaction in gastric and duodenal ulcers. Neurasthenics have only a general reaction.

Mechanism of Torsion of Organs.—Tenckhoff emphasizes the normal slight rotating movements in walking. These movements are responsible for the torsion of pedunculated cysts and organs. They explain also Küstner's law which postulates an opposite twist for tumors originating in the opposite sides of the body.

"Speaking Phenomena" in Diagnosis.—Weisz' observations on the visible changes of the outline of the thorax and abdomen during speaking, allow determination of the borders of the lungs and of exudates. He gives here a physiologic explanation.

Pituitary Treatment.—Klotz reports good results of pituitary preparations in states of collapse and intestinal paralysis.

Children of Minor Mothers.—Wilsing reviews the results of childbearing of twenty-five girls between 13 and 16 years old. Labor was easy, but two had convulsions afterwards. The infants were of normal size, and developed well physically. The frequent occurrence of mental diseases among such children is probably due to hereditary predisposition, which was already manifest in the early sexual instinct of the mother.

Deutsche Zeitschrift für Chirurgie, Leipzig

181: 145-288 (Aug.) 1923

Results of Gallbladder Surgery at Leyden. W. F. Suermondt.—p. 145.
Fibrous Osteitis; Two Cases. Warsow.—p. 178.
Roentgen Diagnosis of Peptic Ulcer. J. Palugyay.—p. 203.
Injury of Skull from Live Wire. H. Luther.—p. 220.
Operative Treatment of Fractures. H. Schäfer.—p. 238.
Surgical Treatment of Sciatica. Schüssler.—p. 256.
Perforation of Gastric Cancer. W. Horn.—p. 264.
Differential Diagnosis Between Ulcer and Cancer. Idem.—p. 264.
Varix in Jugular Vein. L. Sussig.—p. 281.

181: 289-426 (Aug.) 1923

*Fracture of Neck of Femur. H. Eggers.—p. 289.
*The Neurinoma Question. K. H. Erb.—p. 350.
*Two Unusual Cases of Ileus. A. Roseno.—p. 375.
*Embolism of Mesenteric Artery. Bruns.—p. 390.
*Extensive Resection of Small Intestine. A. Sohn.—p. 403.
*Injury of Small Joints. F. Kazda.—p. 413.
Hernia of Spigelius' Line. Thoret.—p. 420.

The Present Status and the Prospects of Treatment of Fracture of the Neck of the Femur.—Eggers' article is based on eighty-nine cases between 1905 and 1913, supplemented by a review of the literature. He compares the outcome of operative and conservative measures in thirty-nine and fifty cases, respectively. In a young patient, mechanical support with a peg, screw or suture should be tried with a mixed or intertrochanteric fracture, but with a fracture close to the head Lexer's nearthrosis operation is preferable. For the aged, decapitation and freshening of the acetabulum to induce healing by ankylosis is the method of choice; no peg or screw should be used. For the middle-aged, the location of the fracture determines the technic to be applied, with consideration whether there is a tendency to diabetes, arteriosclerosis or arthritis deformans; also whether cooperation on the part of the patient can be secured. If all conditions are favorable for recovery with a movable joint, Lexer's nearthrosis operation is most promising for subcapital fractures. If conditions are not favorable, he advocates Lorenz' bifurcation method, designed originally for irreducible luxation of the hip joint. (It was described in these columns, Sept. 22, 1923, page 1061.) Conservative treatment should be the rule for separation of the epiphysis; only when this fails should operative measures be considered. He urges others to compare the outcome of conservative and decapitation treatment of subcapital fracture. After removal of the head, is there often danger of atrophy of the neck? This occurred in one of his cases, nullifying the benefit from the operation. Even with pseudarthrosis there may be secondary resorption of neck tissue unless care is used not to impair the nourishment of the neck. It is important to learn the functional outcome of the bifurcation technic and of Lexer's method. It might be possible to apply a walking plaster cast with the latter; this would raise the age limit suitable for the Lexer procedure.

The Neurinoma Question.—Three personal and forty-seven collected cases of neurinoma are compared by Erb. They are usually accompanied by other anomalies, from pigmented nevi to gliomas in the brain. In diagnosis of internal tumors, more heed should be paid to tumor growths in the skin. He classes neurinomas with neurofibromatosis. Malignant degeneration of a typical neurinoma has never been observed, but association with sarcoma is not uncommon.

Unusual Cases of Ileus.—In the first of Roseno's two cases there was axial torsion of a loop of the ileum, and this loop 12 to 15 cm. long sloughed off spontaneously. Necropsy showed a gap in the ileum of about 4 cm., but the twisting of the stumps had closed the lumen completely. The gap was bridged by omentum, while the cast-off loop was floating freely in malodorous fluid. The lumen must have been closed before the gangrenous loop sloughed off, as the peritonitis was comparatively restricted and mild, and the whole process occurred in the lower abdomen. Intercurrent bilateral parotitis was mainly responsible for the fatal outcome, four weeks after the ileostomy had apparently started the woman on the road to recovery. No attempt was made at the laparotomy to investigate the cause of the puzzling conditions encountered. Necropsy confirmed the wisdom of this, as otherwise the peritonitis would have been diffused. In another case of acute ileus, the woman, aged 37, recovered spontaneously after nine days of persistent vomiting, fecaloid for the first six days. The ileus followed evacuation of an effusion in the pouch of Douglas which developed after curettement on account of right adnexitis.

Embolism of Superior Mesenteric Artery.—Burns adds a third to the two cases he has found on record in which the segment of intestine affected by embolic obstruction of the superior mesenteric artery was successfully resected. The sudden agonizing pain, collapse, vomiting, tenderness in the right side, and a history of pains in the right side three weeks before suggested recurring appendicitis. No stools or flatus had been passed since the first symptoms twelve hours before. The patient was a boy, aged 11; the purplish segment of bowel resected measured 16 cm. The embolism involved the right colonic artery, but its source was not ascertained. Recovery was uneventful.

Extensive Resection of Small Intestine.—Sohn has collected eleven cases in which more than 2 meters of small intestine were resected since Flechtenmacher's compilation. This with a personal case described, brings the total to sixty-eight. In his own case nearly the entire jejunum and part of the ileum, 2.75 m., was resected. The stomach seems to retain the chyme longer and secretion is more profuse than in normal conditions; he regards this as a compensatory process. It confirms Stassoff's experimental experience. The young woman seems healthy now, a year later, and weighs a pound more than before.

Treatment of Wounds of Small Joints.—Kazda reports the outcome of treatment of ninety-five patients with cuts or crushing injuries involving joints in fingers or toes. When the suppurating joint was opened wide, it could be left to heal by granulation. But when the opening into it was small, a phlegmon developed in the capsule and total suppuration followed unless resection was done. If the ability to flex the joint has to be sacrificed, then resection hastens healing. The final outcome depends in large measure on the intelligence and perseverance of the patient. Children give the best results not only as to healing but as regards function later. Fragments of bone or cartilage must be removed. In one case the third, fourth and fifth fingers had been torn from the metacarpus with all the dorsal and volar soft parts, but they were replaced on their metacarpal heads with all the soft parts in place and only the skin was sutured. After primary healing the fourth and fifth fingers have regained good function; the third finger is still stiff. In another case the injury of the joint had been from an indelible pencil and serious disturbances followed in both soft parts and bones. Complete recovery followed excision of all the stained tissues and excochleation of the joint head into sound tissue, with immediate suture.

Medizinische Klinik, Berlin

19: 1181-1214 (Sept. 2) 1923

*Roentgen Ulcers. P. Leusden.—p. 1181.
*Procain in Diagnosis. M. Kappis and F. Gerlach.—p. 1184.
Pulmonary Changes in Children with Extrapulmonary Tuberculosis. K. Dietl.—p. 1192.
*Human and Bovine Tuberculin Tests. H. Koopmann.—p. 1193.
Ponndorf's Tuberculin Vaccination. Windrath.—p. 1196.
Injury by Hypnosis. M. Serog.—p. 1197.
Arsphenamin-Resistant Syphilis. W. Löwenfeld.—p. 1197.
Treatment of Angioneurotic Edema. F. Gerlach.—p. 1198.
Treatment of Gastric and Duodenal Ulcers. R. Fuchs.—p. 1199.
Theory of Seroreactions in Syphilis. H. Sachs.—p. 1200.
Survey on Goiters. K. Singer.—p. 1201.
Capillaries of Skin. E. Edens.—p. 1202.

Roentgen Ulcers.—Leusden finds that he has at times about as many patients to treat with roentgen rays as he has patients requiring treatment on account of sequelae of irradiations. The question of the roentgenologist's responsibility is very difficult. He believes in an individual oversensitiveness, and quotes his own intolerance of reflected light on the coast or at high altitudes. Yet he was able to work without precautions for four years with the roentgen rays. The operating surgeon knows at least what he is cutting. The roentgen rays act on the whole conglomerate of tissues. The terrific pains of roentgen ulcerations are due to the survival of nerve terminals over the rest of the tissue. The conservative treatment of such ulcers has no good results. A recent publication of a treatment which achieved almost the healing over of the ulcer in six months, demonstrates our modesty in estimating success. He treats such ulcers like malignant tumors, resecting if possible into healthy tissue, and supplements this with a plastic operation.

Paravertebral Injection of Procain in Diagnosis.—Kappis and Gerlach confirmed on over 100 patients Läwen's results as to the analgetic action of paravertebral injections of procain in certain abdominal affections. In disease of the stomach, the sixth to eighth thoracic segment must be injected. They confirm Läwen's interesting observation that it is sufficient in affections of the gallbladder, pylorus and duodenum to inject the right side only. Cholecystitis, stones in the common bile duct, etc., became painless after injections in the ninth to eleventh thoracic segment. Affections of the kidneys reacted to injections into the last thoracic and the first two lumbar segments. Appendicitis and gynecologic affections required more extensive infiltrations. Failures were rare, but injury of the pleura occurred in 4 per cent. of the patients.

Comparative Human and Bovine Tuberculin Test.—Koopmann was able to increase the number of positive tuberculin reactions by using a preparation of the bovine type in addition to the human tuberculin.

Münchener medizinische Wochenschrift, Munich

70: 1107-1140 (Aug. 31) 1923

*Functions of Stroma. M. Askanazy.—p. 1107.
*Genesis of Hydrocephalus. A. Dietrich.—p. 1109.
*Intracardiac Injection. H. Hohlweg.—p. 1110.
*Duodenal Tube in Diagnosis. K. Westphal.—p. 1113.
Sympathectomy in Treatment of Epilepsy. E. Forster.—p. 1114.
Subcutaneous Injections of Turpentine in Eye Disease. Behr.—p. 1116.
Estimation of Hemoglobin and Erythrocytes. K. Bürker.—p. 1118.
Live-Wire Injuries of the Skin. G. Riehl.—p. 1119.
Contagiosity of Infants' Tuberculosis. A. Bratusch-Marrain.—p. 1120.
Iodin Prevention of Goiter. Lutz.—p. 1121.
The Orthometer for the Heart. Lilienstein.—p. 1121.
Alleged Malpractice: Case VIII. A. Döderlein.—p. 1122.
"Isotopic Treatment of Tuberculosis." S. Widerøe.—p. 1123.
Experimental Pneumorhachis. Esau.—p. 1124.
"Bleeding After Delivery." Opitz.—p. 1124.
Liebig, Father of Scientific Nutrition. O. Krummacher.—p. 1124.
Social Insurance and Tuberculosis. Wilucki.—p. 1128.
Treatment of Nephritis in Children. M. Klotz.—p. 1127.

Functions of Stroma.—Askanazy reviews the old and new investigations on the function of the stroma. The primitive idea that its main function is to connect and support the parenchyma, has been left far behind. Protective mechanical and chemical cleaning is its most important function.

Genesis of Hydrocephalus.—Dietrich finds that the size of the hydrocephalus corresponds rather to the extension of the changes in the choroid plexus than to the seat of the occlusion. He agrees with Askanazy in the opinion that the plexus has resorptive functions. The common belief that it secretes the cerebrospinal fluid has so far no foundation except tradition. It is probable that the ependyma secretes the fluid.

Intracardiac Injection.—Hohlweg had a perfect result with intracardiac injection of 2 c.c. of camphorated oil in a case of shock during the filling of an artificial pneumothorax. The preferable point, he says, is the upper border of the fifth rib, close to the sternum.

Duodenal Tube in Diagnosis.—Westphal had some positive and negative results with cultures made from the duodenal juice (peptone reflex) in patients suffering or recovering from typhoid.

Wiener Archiv für innere Medizin, Vienna

6: 283-494 (July 1) 1923

*Metabolism in Tetany. H. Elias et al.—p. 283.
*Cheyne-Stokes Syndrome. S. Wassermann.—p. 303.
Typhoid Endocarditis. F. Redlich.—p. 335.
*Epinephrin in Blood. F. Högler.—p. 343.
Blood Colloids. J. Daniel and F. Högler.—p. 355.
Blood Gases. I. E. Freund and A. Simó.—p. 373. II.—p. 487.
Epinephrin Reaction. K.Csépai, B. Fornet and K. Tóth.—p. 383.
*Pathogenesis of Dysentery. M. Semerau.—p. 395.
*Charcot-Leyden Crystals. A. Neumann.—p. 407.
Retrograde Extrasystoles. R. Gussenbauer.—p. 423.
*Auscultation of Vowels. E. Fröschels and F. Stockert.—p. 427.
Diaphragmatic Hernia and Relaxation. H. Elias and K. Hitzenberger.—p. 437.
*Diaphragmatic Hernia. L. Reich.—p. 445.

Metabolism in Tetany.—Elias, Kornfeld and Weissbarth compared the composition of urine after drinking equivalent amounts of hydrochloric acid and sodium chlorid solutions. They found in normal subjects, as anticipated, a stronger increase in the acidity and ammonia content of the urine after ingestion of the acid. Slight disturbances (movements, fever) were sufficient to cause differences. In tetany, such changes are very frequent, and may be so marked that the patient eliminates less acid after taking the hydrochloric acid than after the salt.

Cheyne-Stokes Syndrome.—Wassermann considers inhalation of oxygen as a specific treatment for the Cheyne-Stokes syndrome. One must take care, however, to prevent the patient from tearing the mask off when he starts breathing. The usual heart tonics and stimulants may be used as adjuvants. Syphilitic etiology requires specific treatment. Opium and its derivatives, and all narcotics and hypnotics are strictly contraindicated.

Epinephrin in Blood.—Högler found that blood plasma from healthy persons inhibits the peristalsis of a segment of cat intestine (Dittler's method for determination of epinephrin). Plasma from patients with hypertension had a stronger action, while the plasma from two cases of Addison's disease was without effect.

Pathogenesis of Dysentery.—Semerau believes that the dysenteric changes in the intestines follow bacillemia.

Charcot-Leyden Crystals. — Neumann believes that the mother substance of the Charcot crystals is derived from the protoplasm of eosinophil cells during coagulation of blood. It seems to have some relation to the formation of fibrin.

Auscultation of Vowels.—Fröschels and Stockert report their investigation of the changes in the auscultation sounds of vowels in healthy persons. Karplus has reported changes of this kind in pneumonia and pleuritis. Only the continental A remains the same in auscultation of healthy subjects. The eventual changes are due to interference of air conduction and the resonance of the thorax.

Diaphragmatic Hernia.—Reich reviews the symptomatology of diaphragmatic hernia. Müller's experiment is the ideal method for determination of the functional condition of the diaphragm. The subject is asked to make an extreme expiration. Then, after closing his nose and mouth, he makes an inspiratory movement. In healthy persons, both sides of the diaphragm move then in the same direction or remain in place. In affections of one side of the diaphragm, the diseased side rises higher than the other. The literature is quoted extensively.

Wiener klinische Wochenschrift, Vienna

36: 585-602 (Aug. 16) 1923

*Complications of Tonsillectomy. W. Falta and F. Depisch.—p. 585.
*Idem. F. Schlemmer.—p. 589.
Anaphylaxis After Milk Injections. K. Schreiner.—p. 591.
Ascaris in Roentgenogram. J. Reiter.—p. 592.
Trombidiasis in the Alps. K. Toldt.—p. 592.

General Complications of Tonsillectomy.—Falta and Depisch publish eight histories of patients with nephritis, endocarditis or arthritis. In all of these cases the tonsillectomy or removal of infected roots of teeth was followed by an acute exacerbation of the disease. One of the patients was a physician who had pains in the joints only after expression of the tonsils and the operation, but never before. They attribute the acute exacerbation to an invasion of the blood by the germs during the operation. They believe that operative methods should be revised from this standpoint.

Idem.—Schlemmer points out that internal complications follow only after tonsillectomies which had been indicated because the tonsils were the probable source of the infection. He has seen pains in joints and elevation of the temperature in several instances after expression of tonsils. He considers this a serious intervention, saying that it is contraindicated in patients with latent tonsillogenous affections. He never grasps the tonsil in the first stage of tonsillectomy. He seizes the pillars of the fauces instead of the tonsils themselves. The tonsil can be grasped without danger of spreading the infection into the lymphatics when more than half of it is already freed.

Zentralblatt für Chirurgie, Leipzig

50: 1345-1384 (Sept. 1) 1923

Freezing of Nerves in Angiospastic Conditions. Läwen.—p. 1346.
Pseudarthrosis of the Scaphoid Bone. H. R. Schinz.—p. 1350.
Luxation of the Navicular Bone. F. Magenau.—p. 1354.
Metastatic Epulis. M. Weichert.—p. 1356.
*Laceration During Correction of Deformity. P. J. Schultz.—p. 1357.
Comparison of Methods of Protecting Surgeon's Hands. Klapp and Vogeler.—p. 1359.
Acute Postoperative Duodenal Paralysis After Billroth I. S. Kostlivj.—p. 1367.

Laceration During Redressement. — Schultz recommends immediate application of Thiersch epithelial flaps to lacerations occurring during forcible correction of deformities.

Zentralblatt für Gynäkologie, Leipzig

47: 1393-1440 (Sept. 1) 1923

Treatment of Prolapsed Uterus in the Aged. Labhardt.—p. 1394.
A Peculiar Type of Eclampsia. Koerting.—p. 1398.
Pregnancy in Rudimentary Accessory Horn. Conrad.—p. 1402.
Asepsis in Manual Removal of Placenta and in Version. B. Ragusa.—p. 1407.
Eye Disease and Induced Abortion. Eberhart.—p. 1409.
*Intra-Uterine Tamponing. E. Ekstein.—p. 1413.

The Indications and Technic of Intra-Uterine Tamponing.—Fritsch introduced intra-uterine tamponing chiefly to check hemorrhage in anemic women in febrile abortion cases in which evacuation of the uterus cannot be completed. The gauze keeps the os uteri open, and ovum remnants are removed simultaneously with the gauze. Fritsch leaves the gauze from three to four days after defervescence. Ekstein has used the method since 1891. He gives his indications as follows: In copious uterine hemorrhages that need to be checked quickly, irrespective whether the hemorrhage is caused by uterine disease or from retained remnants of the ovum; retention of remnants of the ovum when more or less profuse hemorrhages continue, often for several weeks; in induced interruption of pregnancy from the first to the fifth month; in hemorrhages resulting from atony of the uterus post partum; retention of secretions post partum or post abortum, and in febrile abortion, in place of all other forms of intervention, when the retention of remnants of the ovum or secretions cannot be ruled out with certainty. Ekstein regards intra-uterine tamponing as contraindicated in febrile inflammatory affections of the adnexa and the pelvic peritoneum. This contraindication arises from the fact that the technic of intra-uterine tamponing always causes a displacement of the uterus and the adnexa.

Tohoku Journal of Experimental Medicine, Sendai

4: 275-416 (July 30) 1923

Blood Alcohol. K. Yamakami.—p. 275.
*Action of Pancreas Extract on Vessels. T. Oka.—p. 287.
Occurrence of Meningococci. S. Kondo.—p. 307.
*Glycogen Formation. II. K. Sato.—p. 312. III.—p. 347.
*Physostigmin and Ocular Pressure. Y. Hayashi.—p. 361.
*Camphor and Circulation. F. Nakazawa.—p. 373.

Action of Pancreas Extract on Vessels.—Oka found that extracts from the pancreas have a vasoconstricting action, which is substituted by a vasodilating action when the extracts were made at a temperature of 70 C. Extracts made with dilute acetic acid also had a vasodilating action. It was stronger and more constant than in extracts from other organs.

Glycogen Formation.—Instead of determining the amount of glycogen in particles of liver cut out serially during the course of the experiment, Sato used a series of animals, so that the one used had not been injured before. He found that infusions of glucose increase, at first slowly, then more rapidly, the glycogen content in the liver. This reaches its maximum in about three hours after the injection. Epinephrin prevents, and theobromin-sodium salicylate checks the formation of glycogen. Phlorizin did not inhibit it, in spite of the glycosuria, when given in suitable amounts.

Physostigmin and Ocular Pressure.—Hayashi investigated the action of physostigmin on the intra-ocular pressure in normal subjects. He found that it causes a transitory increase in pressure.

Camphor and Circulation.—Nakazawa finds that camphor paralyzes the formation and conduction of the impulse in frog's hearts, and in large doses stimulates the latent automatism. He believes that the favorable effects of camphor in strophanthin and aconitin poisonings are due to its paralyzing action on the abnormally irritated heart muscle.

Norsk Magazin for Lægevidenskaben, Christiania

84: 761-848 (Sept.) 1923

*Treatment of Chronic Leukemia. T. Brandt.—p. 761.
Incarcerated Hernia of Line of Spigelius. C. Bull.—p. 802.
Subcutaneous Emphysema. S. Laache.—p. 806.

Roentgen-Ray Treatment of Chronic Leukemia.—Brandt has had nine cases of chronic myelogenous and five of chronic lymphatic leukemia under observation for years before and after roentgen-ray treatment. Of the eight that have died, only one survived for thirty months after the disease had been diagnosed. The others died in less than two years. Roentgenotherapy, therefore, does not cure leukemia, but it improves the general condition, restores the earning capacity, and has a favorable action on the erythrocytes. Leukemia patients always eliminate more uric acid than normal, and this elemination becomes exaggerated under roentgen treatment. The latter is only symptomatic, and it is contraindicated in acute leukemia, and should be suspended if the general condition shows aggravation, but a loss of 3 or 4 pounds in the first week need not be heeded. One woman with leukemia was delivered of healthy twins, after which the disease became graver. A trial of convalescents' serum gave negative results.

Ugeskrift for Læger, Copenhagen

85: 653-668 (Sept. 13) 1923

*Composition of Spinal Fluid. A. V. Neel.—p. 653. Conc'n, p. 669.
Case of Myeloid Leukemia. K. Hrolv.—p. 660.

Composition of Spinal Fluid.—Neel cites what the authorities have to say on the cell and albumin content of the normal spinal fluid. These statements are often conflicting, and he compares them with the tabulated findings in 1,118 various nonsyphilitic nervous affections he has investigated, with or without syphilis in addition, or epidemic encephalitis, and 699 normal controls. Whenever the number of cells was over one in 3 c.mm., there was always evidence of syphilis or other organic disease. In the normal fluids there was no globulin but the albumin was frequently found up to 10. This formula: cells none or up to one third cell per c.mm.; globulin, 0, and albumin, 10, had so few exceptions that he regards it as dependable to exclude organic disease. The tests were made without knowledge of the source of the fluid. They apparently demonstrated that normal spinal fluid has a remarkably constant composition in respect to cells and albumin. He warns that, as with many other tests, only positive findings are decisive.

85: 669-684 (Sept. 20) 1923

*Competitive Examination for Professorship. C. Gram et al.—p. 679.
*Delirium Tremens at Copenhagen. K. H. Krabbe.—p. 679.

Selection of a Professor in Denmark.—The complicated procedure for selecting a successor to Prof. C. Gram was commented on editorially, Oct. 27, 1923, p. 1444.

Denmark's Successful Fight Against Alcoholism.—Krabbe relates that prohibition was decreed in Denmark in 1917. The decree absolutely prohibiting the sale and importation of alcohol was dated Feb. 27, 1917, but in less than a month this decree was revoked, and the only restriction on alcohol then imposed was to raise the retail price of strong liquors about fifteen-fold. People stopped buying liquor then, and the fight against alcohol was won, without restrictive laws. Krabbe presents as evidence to prove these statements the record of cases of delirium tremens at the public hospital at Copenhagen. Whereas, from 1903 to 1916, inclusive, there had never been less than 249 cases of delirium tremens in any year, and the number sometimes reached 447, in 1917 it dropped to 82; to 9 in 1918; 11 in 1919; 18 in 1922. The previous hard drinkers said they could not afford liquor at these high prices, and they left it alone. He reiterates that these facts prove that Denmark is on the right track. Merely by enforcing a very high price for hard liquors, chronic alcoholism became so rare that the cases of delirium tremens dropped off 95 per cent. He adds that prohibition might have accomplished the same, but with the plan adopted there was no opportunity for conflict with the law, and the profession is grateful that it did not have to contend with the temptation to write prescriptions for alcohol.

Upsala Läkareförenings Förhandlingar, Upsala

28: 301-436 (Sept. 7) 1923

*Ageing of the Rabbit Thymus. II. T. Blom and N. Aderman.—p. 301.
Proteolytic Liver Ferment. C. G. Zachrisson.—p. 333.
*Acute Meningitis in Children. A. Wallgren.—p. 341.
*White and Grey Substance in Brain. G. Dahlberg.—p. 351.
Report on Traveling Fellowship. P. Häggström.—p. 369.
*The Parathyroids and Paralysis Agitans. E. Bergman.—p. 405.

The Rabbit Thymus.—In this second report of study of the ageing process, the number and size of Hassall's bodies are considered. (In German.)

Benign Acute Meningitis in Children.—Wallgren warns that epidemic encephalitis and poliomyelitis are liable to begin with symptoms deceptively simulating tuberculous meningitis. He describes three such cases in children, and cites Nauclér's ten in adults, the recovery disproving the presumptive diagnosis of tuberculous meningitis. In Eskuchen's case of rapidly fatal epidemic encephalitis presenting this same syndrome, lumbar puncture had shown 640 cells. Nauclér classes his cases as acute serous meningitis although in one case the puncture fluid contained 2,590 cells per c.mm. In one of Wallgren's cases, epidemic meningitis had been diagnosed and serotherapy was begun, but the next day paralysis of the legs corrected the diagnosis to poliomyelitis. (In German.)

Relative Volumes of Gray and White Substance in the Brain of Man.—Dahlberg has modified the Jaeger method for research in this line, and tabulates the comparative findings in different parts of the brain and in men and in women. If his findings are confirmed by others, they indicate, he says, a highly interesting difference between the sexes, especially in the frontal lobe. (In English.)

The Parathyroids and Paralysis Agitans.—Bergman reports negative results of parathyroid treatment and transplantation in an effort to benefit paralysis agitans and the parkinsonian symptoms of epidemic encephalitis. Nothing was observed in the eight cases described that suggests any connection between the parathyroids and parkinsonism.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. 81, NO. 23 CHICAGO, ILLINOIS DECEMBER 8, 1923

UROLOGY IN WOMEN *

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There is at present an unfortunate tendency in many parts of the country to separate urology in women from urology in general, and place it in the hands of the gynecologist and obstetrician. The argument most commonly advanced in favor of this procedure is that the generative and urinary tracts are in close proximity in this sex, and, consequently, pathologic conditions of the two are frequently associated. As a matter of fact, the same intimate relationship exists between the female generative organs and the rectum and colon, but pathologic lesions of these are seldom classed as gynecologic conditions.

In a study of 200 nonpregnant women with urinary disturbances, I found that the symptoms were entirely due to urinary tract conditions in 73 per cent., whereas lesions of the generative organs, although present in a large proportion of cases, were possible etiologic factors in only 27 per cent.

These correspond with the figures of Bugbee,[1] who, in a series of 1,000 cases of frequency of urination, the most common genito-urinary symptom of which women complain, found the etiologic factor in the generative organs in contradistinction to the urinary tract in but 24 per cent.

Hunner [2] stated in 1920 that his observations of various clinics had led him to the belief that urologists as a class devote their chief time and energy to male patients, and that when an attempt is made to include women as clinical studies, "the work is usually done with indifference, if not with positive neglect." I do not think that this criticism holds good at the present time. In my opinion, the conscientious genito-urinary surgeon, devoting his attention to urology exclusively, is necessarily more familiar with the urinary organs in both men and women than the gynecologist, who, often combining obstetrics with gynecology, hardly finds sufficient time to acquire, or, having acquired, to maintain a proficiency in all three specialties.

Naturally, there are marked anatomic, physiologic and pathologic differences in the male and the female pelvic organs, and some female urinary tract disturbances are due primarily to diseases of the female sex; consequently, some previous training in gynecology is of decided advantage to the urologist.

In this paper I propose to discuss a pathologic condition of the urinary tract in women and girls which is frequently overlooked, and a few others which are more common or are limited exclusively to this sex.

URETHRAL STRICTURE

It is only within a comparatively recent period that urologists have begun to accord urethral strictures the recognition they deserve as important etiologic factors in genito-urinary tract disturbances in women and girls. They are frequently overlooked by the urologist, more often by the gynecologist who treats urologic conditions in women, and usually by the general practitioner. While comparatively uncommon in the lumen of the canal, they are often found at the meatus. Obstructions at this point, whether congenital or acquired, are nevertheless strictures in the anatomic sense. They are responsible for symptoms, such as frequent urination and dysuria, which improve rapidly under dilation. It is not uncommon to find the voided urine chemically and microscopically negative in these cases, although as a rule it contains a few pus cells, owing to the urethritis and trigonitis with which it is usually associated. Often symptoms ascribed to some other condition, such as ureteral stricture, are due to a urethral obstruction. In his analysis of 1,000 cases of frequency of urination, Bugbee found urethral stricture associated with urethritis and trigonitis to be the most important factor in fifty-four cases, while ureteral stricture was responsible in but four cases. In this series, he included only those in which it was difficult to pass an 18 F. dilator. Even then he was surprised to find so many strictures, and was forced to the conclusion, from his observations in this series of cases, that stricture of the female urethra is a comparatively common condition.

It has been my experience that unless olive tipped bougies are used for calibration of the urethra, many obstructions will be overlooked, and that strictures of a much larger caliber than 18 F. will often give rise to symptoms. Using this method of diagnosis in a series of 169 cases, I found urethral strictures in ninety-four, or 55.4 per cent.

The fact that almost without exception these patients improved under treatment directed toward overcoming the urethral obstruction proves that this condition was responsible for the symptoms.

Hunner, who finds a very large number of ureteral strictures, states that urethral strictures were more than 60 per cent. of the cases in w strictures were found.

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Bugbee, H. G.: Frequency of Urination in Women, J. A. M. A. 68: 693 (March 3) 1917.

[2] Hunner, G. L.: Urologic and Cutaneous Review 24: 627, 1920; J. Urol. 4: 503 (Dec. 5) 1920.

Stanton[3] reports the observation of a large number of cases in which strictures of the urethra were responsible for severe attacks of renal colic. Ureteral strictures and infections or other pathologic conditions of the upper urinary tract were excluded. Immediate improvement followed dilation of the urethra.

In my series of cases of ureteral stricture, urethral strictures were present in 54.5 per cent., and in my urethral stricture cases, ureteral stricture was found in 46.1 per cent.

Inflammatory strictures of the urethra occur at or just within the meatus, and the most common etiologic factor is gonorrheal infection. Traumatic strictures occur at the meatus or in the lumen of the canal, and are usually the result of childbirth. Congenital stenosis at the meatus is by no means a rare condition. I have never been able thoroughly to satisfy myself that focal infections have any bearing on the etiology of this condition.

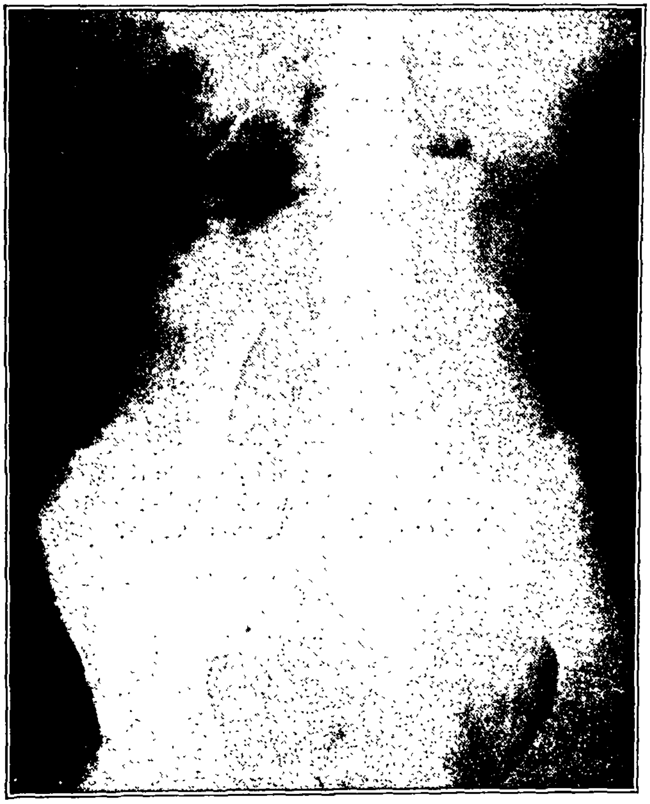

Fig. 1.—Obstruction of right ureter caused by child's head.

Gradual dilation at three or four day intervals is the most satisfactory treatment for the majority of urethral strictures. Contractures at the meatus of the female urethra respond more readily to this procedure than those occurring in the male, and incision or divulsion is seldom required. Preceding dilation, it is sometimes advisable to employ a local anesthetic, and a cotton tipped applicator saturated with a 10 per cent. solution of cocain is most satisfactory for this purpose. Following dilation, a small quantity of silver nitrate solution is usually injected because of the urethritis and trigonitis, which, as the result primarily of the stricture, are often present.

URETERAL STRICTURES

There has been much discussion during the last few years regarding the frequency and symptomatology of ureteral strictures in women. No less an authority than Hunner regards them as the most common pathologic condition of the female urinary tract. He believes that more kidney disease is due to ureteral stricture than to any other single factor, and states that they are responsible for pyelitis, pyelitis in pregnancy and the puerperium, hydronephrosis, pyonephrosis, kidney and ureteral stones, movable kidney and essential hematuria. In his opinion, innumerable abdominal and pelvic operations have been performed because of the symptoms due to this condition. He uses wax bulbed catheters and the presence of pain or "nagging discomfort" at the site of the stricture for a diagnosis.

I have recently made it a practice to calibrate the ureters with similar catheters and, in addition, in many instances, to obtain pyelo-ureterograms in patients complaining of symptoms of pyelitis or other pathologic conditions referable to the urinary tract for which no cause could be found in the lower urinary tract, or in patients who did not improve rapidly under treatment. As a result of thirty-seven calibrations, I found ureteral strictures in eleven, or 29.7 per cent.

From these figures I think that we are justified in concluding that pyelitis and other pathologic conditions of the upper urinary tract frequently exist in the absence of ureteral strictures, and also that strictures of the female urethra are far more numerous than ureteral strictures. Not unlikely, the symptomatic improvement apparently derived from dilation of the ureter is often due to the dilation of the urethra by the cystoscope or endoscope used in that procedure.

While, without doubt, ureteral strictures have been often overlooked in the past, I think that the pendulum has now swung too far in the opposite direction, and that strictures of the ureters are frequently diagnosed when they are not present and symptoms with which they have no connection are often ascribed to them.

The primary etiologic factor in ureteral stricture is not necessarily a distant focus of infection. They may occur secondarily to inflammatory conditions due to infection of the renal pelves with organisms other than the tubercle bacilli, and they may result from ascending infection.

I have found Garceau catheters of various sizes most satisfactory in the treatment of ureteral strictures, as with these the dilation is more gradual and more prolonged, and it produces less trauma than wax, silk or metal bulbed catheters.

PYELITIS DURING PREGNANCY

Pyelitis occurring during pregnancy is most interesting from the standpoint of etiology and treatment, although early diagnosis before the kidneys have become severely damaged is of the greatest importance. In 2,528 clinic patients admitted to the obstetric department of Stanford University Medical School, a diagnosis of pyelitis was made in thirty-one, or 1.22 per cent. In 1,114 obstetric cases in the Stanford wards of the San Francisco County Hospital, pyelitis was found during pregnancy in eight, or 0.7 per cent. From this series of 3,642 cases, it will be seen that pyelitis occurred during pregnancy in thirty-nine cases, or a little less than 1 per cent.

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[3] Stanton, E. MacD.: Am. J. Obst. & Gynec. 5: 72 (Jan.) 1923.

I believe that these figures are too low, many cases being overlooked because insufficient importance is attached to the urinary symptoms of which many of these patients complain during this period, and because a microscopic examination of the urine is often neglected, or the presence of pus ignored.

According to De Lee,[4] two thirds of the women dying during pregnancy have or have had pyelitis at some time. When we consider the number of cases occurring during infancy and childhood, it is evident that this figure is a conservative estimate. It does not seem to me unlikely that, regardless of pregnancy, almost every woman has had pyelitis at some time during her life.

The majority believe that pressure on the ureters by the pregnant uterus is the most important etiologic factor in pyelitis during pregnancy. De Lee, on the other hand, is of the opinion that pressure by the uterus is never responsible for this condition; he believes, with some others, that kinking, stretching and torsion of the ureters are the principal factors. Pyelography, ureterography and necropsy findings, however, do not support this view, and while twisting, stretching, torsion and strictures of the ureters may be at times responsible, pressure by the pregnant uterus is unquestionably more frequently encountered. In this connection, I believe that tne position of the child in the uterus is of some importance. Figure 1 demonstrates the soundness of this contention. In this case it was impossible to insert the roentgen-ray catheter or inject the sodium iodid solution beyond the obstruction in the right ureter produced by the child's head. At a second pyelography (Fig. 2), the solution passed the obstruction, and the upper part of the ureter as well as the renal pelvis was then found to be dilated.

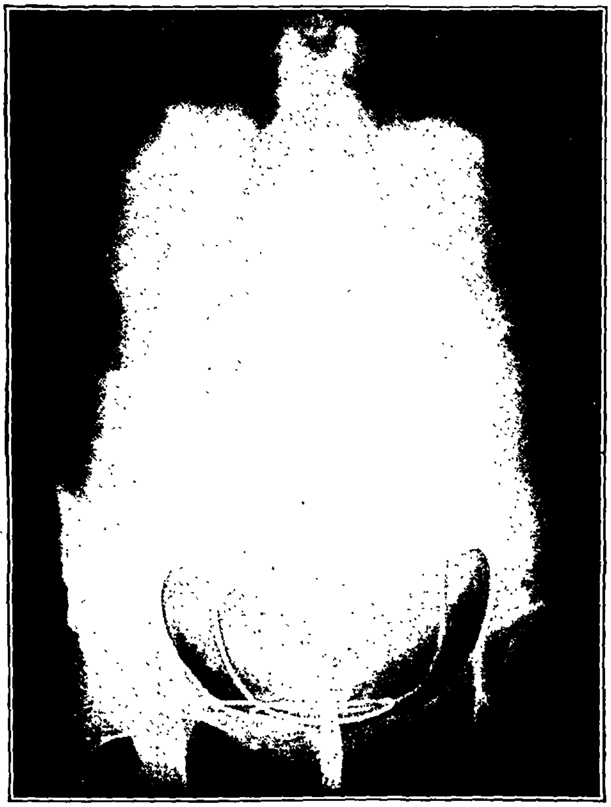

Fig. 2.—Dilatation of kidney, pelves and ureters in a case of bilateral pyelitis during pregnancy.

Danforth[5] reports a case in which catheterization of the ureter was possible only after turning the patient on the unaffected side, thus permitting the uterus to gravitate away from the obstructed ureter.

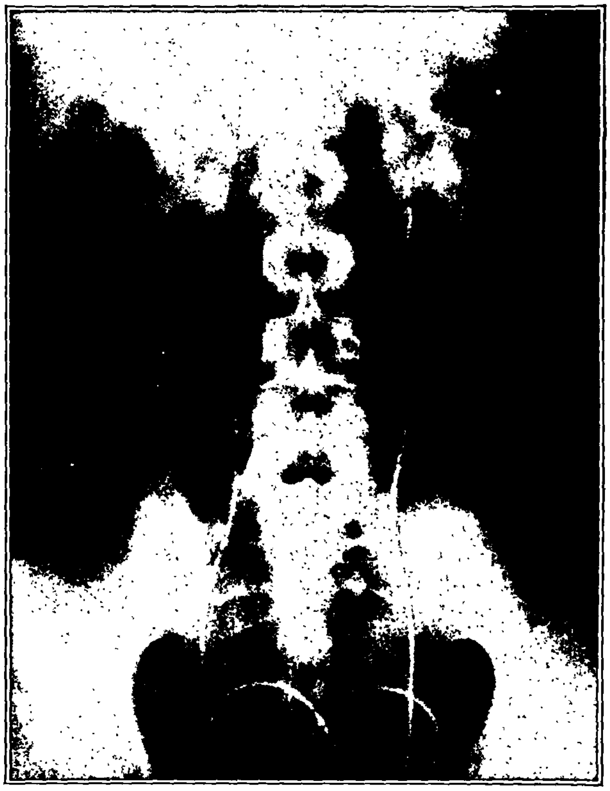

Fig. 3.—Same case as in Figure 2, five weeks after confinement: very little dilatation.

Hodges,[6] following pyelography in seven cases of pyelitis during pregnancy, found dilated ureters and pelves in every case. Another point of interest is Hodges' demonstration that, although all symptoms disappeared and the urine became culturally and microscopically negative, some dilatation persisted after confinement. In four cases of my own in which pyelograms were taken, following confinement, dilatation was observed but once.

The fact that the fundus of the uterus and the fetal head usually lie on the right side of the abdomen accounts for the greater frequency of right sided pyelitis during pregnancy, and lends support to the opinion that pressure by these organs is the most important etiologic factor. Prior to the fifth month, other factors are of greater importance.

Some authorities believe that ureteral stricture is the most common cause of pyelitis in pregnancy. Calibration of the ureter with wax bulbed catheters in five cases of my own failed to reveal this condition, and I believe that, although it may be an occasional factor, its importance has been exaggerated.

Another condition that I believe to be at times a contributory factor in pyelitis in pregnancy is obstruction of the urethra sufficiently pronounced to be responsible for the residual urine, with the accompanying cystitis, urethritis and infection, ascending in type, of the renal pelvis. This is more often the result of urethral stricture, although I have recently seen a case in which pressure on the urethra from a markedly antiflexed pregnant uterus was responsible for the obstruction. It is a well recognized fact that very little pressure is necessary to obliterate the lumen of the ureter. Without question, the congestion incident to pregnancy, in the presence of lesions not sufficiently pronounced to act previously as etiologic factors, will be responsible for pyelitis occurring during this period. No doubt, exacerbation of a preexisting pelvic infection often occurs at this time. Since Posner and Lewin have shown that bacteria enter the lymph channels directly from the intestine, and Franke, on the anatomic side, has demonstrated the occurrence of lymph channels leading directly from the ascending colon and also from the appendix to the right kidney and to its pelvis, this would explain the frequent incidence of pyelitis on the right side. Since constipation is more common in pregnancy than otherwise, it is also reasonable to ascribe to this condition an etiologic rôle in the pyelitis of pregnancy.

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[4] De Lee, J. B.: Obstetrics, 514, 1921.

[5] Danforth, W. C.: Surg., Gynec. & Obst. 22: 723-729 (June) 1916.

[6] Hodges, F. M.: Am. J. Roentgenol. 9: 352 (June) 1922.

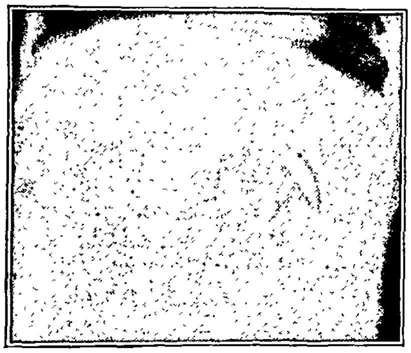

Fig. 4.—Left kidney of a girl, aged 10 months: The sodium iodid solution has penetrated the kidney as far as its fibrous capsule.

Pyelitis of pregnancy will often improve with rest in bed, mild catharsis, a large quantity of water by mouth, bland diet, alkalization and postural therapy, such as the assumption of the knee-chest position for a few minutes several times a day, or lying on the unaffected side in cases of unilateral involvement. If the condition does not respond immediately to this method of treatment, the renal pelves should be drained and irrigated with silver nitrate solution through ureteral catheters. Although prolonged retention of the ureteral catheter is at times advantageous, the possibility of increased inflammation, because of the mechanical irritation caused by the catheter, is to be taken into consideration. Although the symptoms may point to the involvement of but one kidney, both ureters should be catheterized and urine obtained for culture and microscopic examination. I have seldom seen a case in which ureteral catheterization presented any particular difficulty, even as late as the ninth month of pregnancy, and I am not in accord with those who believe that induction of premature labor, nephrotomy or nephrectomy are frequently required. Notwithstanding the disappearance of symptoms following treatment or the termination of pregnancy, specimens of urine should be obtained from both kidneys, as well as from the bladder, for microscopic examination and culture; and, if either are positive, treatment should be continued until the infection has disappeared.

It is not unusual to see patients in whom all objective and subjective symptoms have disappeared during confinement, only to recur during a subsequent pregnancy. This is less apt to happen, however, if negative cultures, in addition to a symptomatic cure, have been obtained. In the presence of residual urine during pregnancy or the puerperium, the bladder should be catheterized daily, and, if infected, it should be irrigated with silver nitrate or other solutions until the infection has disappeared.

When pyelitis occurs during the puerperium, it is often mistaken for puerperal sepsis. It may usually be differentiated from the latter by examination of the urine following ureteral catheterization. Occasionally, however, puerperal sepsis is mistaken for pyelitis. Although in many cases infection of the urinary tract existed prior to the puerperium, a large number occur for the first time during this period. The cystoscope reveals the fact that the bladder sustains more or less injury during every labor; residual urine is frequently present, and infection, extending to the kidney pelvis, readily occurs.

Pyelitis during the puerperium should receive the same treatment as that occurring at any other time.

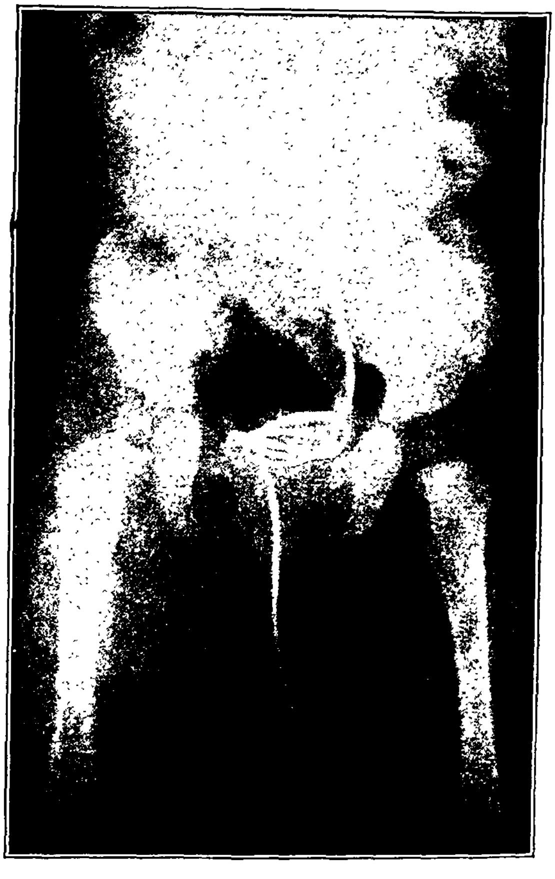

Fig. 5.—Left kidney of an infant, aged 11 months, with subacute pyelitis.

In the presence of residual urine, daily catheterizations of the bladder, the number being regulated by the quantity of residual urine, are of the greatest importance. Obviously, these should not be discontinued even in the absence of subjective symptoms, until the residual urine has completely disappeared.

TUBERCULOSIS OF THE KIDNEY DURING PREGNANCY

Tuberculosis of the kidney during pregnancy is comparatively uncommon, very few writers having seen more than one case. No tuberculous infections of the kidney were observed during pregnancies in the 2,528 cases in the obstetric department of Stanford University Medical School.

I believe, however, that this condition is often overlooked because of the frequency with which urinary disturbances occur during this period, and the failure to make a thorough urologic examination.

Pregnancy exerts an unfavorable influence on renal tuberculosis, and the consensus of opinion is that in the presence of bilateral involvement it should be terminated. If but one kidney is affected, it should be removed as soon as a diagnosis is made. The danger to the child in the presence of renal tuberculosis is illustrated by the following case:

> Mrs. X., aged 22, in the fifth month of pregnancy, complained of frequency of urination. A large number of pus cells had been found in the urine nine months previously. Glands had been removed from her neck when she was 10 years old. The bladder urine contained a large number of pus cells, but was culturally negative. A few acid-fast bacilli were found. The function of the right kidney was diminished, and the urine contained a large number of pus cells. Urine from the left kidney was negative. The guinea-pig inoculated with the urine from the right kidney gave a positive reaction for tuberculosis; the one inoculated with urine from the left kidney gave a negative reaction. Nephrectomy was refused at this time. Four months later the patient was delivered with high forceps. The child was normal except for an infected wound on the left side of the neck, from which tubercle bacilli were recovered. This healed in three weeks, but about three weeks later a gland on the same side of the neck suppurated. Examination of the discharge revealed a large number of tubercle bacilli. Eight months later the baby died of tuberculous meningitis.

PYELITIS DURING INFANCY AND CHILDHOOD

Female infants and children are especially prone to infections of the renal pelvis, although other pathologic conditions of the urinary organs, such as hydronephrosis and hydro-ureter, tumors, calculi, tuberculosis, and urethral and ureteral strictures, are by no means as uncommon as many still believe. The presence of pus or blood in the urine urgently demands a thorough urologic investigation to determination its source, since, during infancy, pyuria or hematuria is often the only symptom that points to the genito-urinary tract. The importance of early diagnosis and treatment cannot be overestimated because, after reaching the chronic stage, many of these conditions are difficult, and at times impossible, to cure.

A colon bacillus pyelitis, while common in both sexes, is found at least three times as often in the female infant. The most plausible explanation of this comparative frequency seems to be the close proximity of the urethra to the rectum and vagina and the theory of direct ascending infection. I believe that, although the hematogenous route is more common, direct ascending infection, often due primarily to urethral obstruction such as stricture or congenital narrowing of the external meatus, not infrequently occurs.

Urethritis, often associated with trigonitis and cystitis, is not uncommon in these cases, whereas, even in severe hematogenous renal infection with colon bacilli, cystitis is seldom observed except in the presence of urethral obstruction. With renal infection serious enough to require nephrectomy, such as tuberculosis and pyonephrosis, cystitis is very frequently present; but in the absence of urethral obstruction, it usually clears up after the removal of the kidney.

As in adults, the primary etiologic factor in pyelitis during infancy and childhood is often an extrinsic or intrinsic obstruction of the ureter, but not infrequently it is impossible to demonstrate this condition. I believe congenital urethral strictures to be responsible for many of these cases. They are most often found at the meatus in the female, and both at the meatus and in the lumen of the canal in male children.

While a certain number of pyelitis cases are apparently self-limited, many persist indefinitely, often as low-grade infections with few, if any, symptoms. Others, however, because of lowered resistance or greater virulence of the infecting organisms, progress more rapidly and with marked symptoms, until the kidney is destroyed.

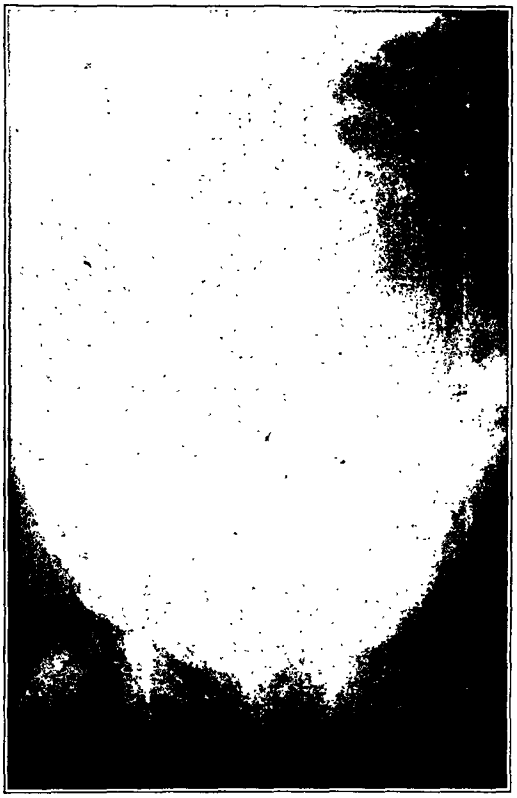
Fig. 6.—Right kidney of a girl, aged 12 months, with chronic pyelonephritis.

The majority of acute pelvic infections in infants and children clear up, at least symptomatically, under the same treatment that is so frequently successful in adults; namely, rest in bed, a large quantity of water, mild catharsis, bland diet, and alkalization of the urine. Not infrequently, however, recovery is slow or incomplete under this system of treatment, and these little patients, regardless of their age, are entitled to the more modern methods of diagnosis and treatment, such as cystoscopy, ureteral catheterization, calibration of the ureters with wax-tipped catheters, functional kidney tests, pyelography and, when indicated, dilation of the ureters and irrigation of the renal pelves.

In those cases in which only a symptomatic cure has been obtained, the infection may persist indefinitely, and in later life it may be an important factor in such conditions as pyelitis occurring during pregnancy or the puerperium.

I am not in accord with those who believe that ureteral catheterization and pelvic lavage are not practical in infants and young children. The female urethra dilates readily, and it is surprising to note how large a catheter may be used in the ureter of an infant. Gentleness is, of course, essential, and I would sound a warning at this time in connection with ureteral catheterization in these cases.

Figure 4 is the pyelogram of the kidney of a 10-months-old baby which has been penetrated as far as its fibrous capsule by the injected solution. A small No. 5 olive tipped catheter and a 10 per cent. sodium iodid solution were used for pyelography in this case. Fortunately, no ill effects followed, and roentgenography five days later showed that the solution had been absorbed.

Although a colon bacillus pyelitis ranks first so far as frequency of pathologic conditions of the urinary tract of the female child is concerned, treatment should not be inaugurated until roentgenography has excluded renal or ureteral calculi as contributory factors. I believe that pyelography should be reserved for those cases which do not respond promptly to pelvic lavage. Only one kidney at a time should be subjected to this procedure.

Three of the following cases under recent observation at Stanford Hospital are interesting, the first because of the age of the child, the second both because of the age of the child and as an illustration of the excellent results which it is possible to obtain by ureteral catheterization and irrigation of the renal pelves in otherwise hopeless cases, and the last because of the unusual etiology.

REPORT OF CASES

Case 1.—E. C., a baby girl, aged 10 months, had had a chill followed by a high fever two weeks before she was brought to the hospital. The fever had fluctuated irregularly since that time. The bladder urine contained a large number of pus cells. Cystoscopy showed a normal bladder sphincter, mucosa and ureteral orifices. The ureters were catheterized to the pelves, and urine was obtained for examination and culture. The right kidney urine showed a few pus cells, but was culturally negative. The urine from the left kidney was microscopically negative, but showed a growth of colon bacilli on culture. The bladder urine was culturally negative at this time, but a later examination showed gram-positive bacilli and nonhemolytic streptococci. Calibration of the ureters with wax-bulbed catheters showed no strictures. Pyelography revealed normal renal pelves. The baby began to improve after the first cystoscopy; the kidney urines were culturally and microscopically negative after the second cystoscopy, and the bladder urine was negative after the fourth cystoscopy.

Case 2.—A baby girl, aged 12 months, was referred from the pediatric department of Stanford Hospital with a history of pyelocystitis of at least three months' duration. The baby was irritable and had vomited more or less since birth. It was extremely emaciated, and its condition was serious enough to require the administration of salt solution intraperitoneally and glucose intravenously. On culture, a catheterized specimen of bladder urine contained a large number of pus cells and colon bacilli. The urethral meatus was contracted, but yielded readily to dilation. Cystoscopy revealed an injected bladder mucosa and a moderate degree of trabeculosis posterior to the trigon; the latter condition, unusual in infants, was probably due to the stricture of the urethra. One ureter at a time was catheterized through a single catheterizing cystoscope. The urine from both kidneys contained a number of pus cells and colon bacilli at some time during the period of observation. The guinea-pig test was negative for tuberculosis. Indigocarmin appeared at the left ureteral orifice in eight minutes, but none could be seen at the right twenty-five minutes after intramuscular injection. (The blood contained 88.3 per cent. of urea per hundred cubic centimeters.) A pyelogram of the right kidney showed the upper minor calices to be distinctly fuzzy and of the lower portion of the pelvis to be markedly irregular. The pyelogram of the left kidney was negative.

Improvement began almost immediately after the first cystoscopy. The baby gained in weight and was clinically cured after the fifth cystoscopy, although the urine still contains a few pus cells and colon bacilli.

Treatment will not be discontinued until the bladder as well as the kidney urines are microscopically negative, because of the danger of reinfection of the upper urinary tract in the presence of positive bladder findings.

Case 3.—M. S., a girl, aged 2½ years, was referred by Dr. Harold K. Faber, because of painful defecation of three weeks' duration and painful urination, hematuria and cloudy urine of three days' duration. In the urine passed two days before, a small, bloody mass was found which contained a tangle of wool fibers. The mother explained its presence by the fact that the child had been "riding horseback" on the arm of a chair. Cystoscopy showed a normal bladder. The urine from the right kidney contained a number of pus cells and colon bacilli on culture; that from the left kidney was negative. Rectal examination was also negative. Improvement began immediately after the cystoscopy, and a catheterized specimen of bladder urine examined a few days later was culturally and microscopically negative.

Case 4.—A girl,[7] aged 8 years, had had urinary symptoms which had begun when she was 3½ years old. On examination, a stricture was found at the external urethral meatus and another at the right ureteropelvic junction. The urine from this kidney was loaded with pus cells, and its function was practically absent. Pyelography revealed a marked degree of hydronephrosis and hydro-ureter on the right side. The roentgen-ray catheter formed a loop in the lower third of the enormously dilated ureter before it proceeded upward to the kidney pelvis. Fortunately, the left kidney and ureter were normal, and, following the removal of the hydronephrotic kidney, the child made an excellent recovery. In all probability the loss of the kidney would have been avoided if the condition had been recognized in its incipience.

Parenthetically, the fact should be emphasized that the age of the child should not preclude surgical procedures when indicated, as operations involving the genito-urinary tract in infants and young children are usually well borne.

I think that cases such as these help to demonstrate the practicability as well as the advantage to be derived from cystoscopy, ureteral catheterization and pyelography in the diagnosis and treatment of pathologic conditions of the urinary tract in female infants and children.

CONCLUSIONS

1. Pathologic conditions of the urinary tract in women should be treated by the urologist.
2. Strictures of the female urethra are not uncommon, and they are often responsible for marked functional and organic disturbances in the genito-urinary tract of this sex.
3. Ureteral strictures are not as common as many believe.
4. The most important etiologic factor in pyelitis of pregnancy is pressure on the ureters by the enlarged uterus.
5. Drainage and lavage of the renal pelvis through ureteral catheters is the treatment of choice in pyelitis of pregnancy.

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[7] I have previously reported this case, but it serves as such an excellent example of the value of pelography in children that I may be pardoned for again presenting it for consideration.

6. In unilateral renal tuberculosis occurring during pregnancy, the affected kidney should be removed as soon as the diagnosis is made.

7. Modern urologic procedures, such as cystoscopy, ureteral catheterization, pyelo-ureterography and pelvic lavage, should be used in the diagnosis and treatment of pathologic conditions of the urinary tract in infants and children.

Flood Building.

ABSTRACT OF DISCUSSION

Dr. William F. Braasch, Rochester, Minn.: There is no doubt that stricture of the urethra in the female occurs quite frequently and is sometimes the cause of symptoms. It occurs more often with vaginal atrophy in the woman of advanced age, and then does not usually cause symptoms. The stricture rarely becomes so advanced as to cause urinary obstruction, and it does not usually cause urinary symptoms unless there is urethritis present. I am glad that Dr. Stevens brought up the question of the occurrence of stricture of the ureter. This section should make an unbiased investigation of the claims made by certain observers that such strictures are of common occurrence. The use of wax bulbs or bougies does not afford sufficient data to determine the existence of a stricture. In fact, unless there is complete occlusion of the ureter, there is no way that ureteral stricture can be diagnosed unless a dilated ureter can be demonstrated above it. It has been my experience that unilateral stricture of the ureter, other than that caused by tuberculosis or stone, does not occur very often. The subject of the etiology with pyelitis of pregnancy is very interesting. I wish to call attention to the work of Quinby and his associates at the Peter Bent Brigham Hospital, in which they have demonstrated experimentally the possibility of ascending infection. It is well known that on ureteral catheterization there is usually residual urine present in the renal pelvis, which is evidently the result of pressure on the ureter. With the consequent interference of ureteral peristalsis, it seems possible that ascending infection should occur. I do not wish to criticize Dr. Stevens, and he possibly was justified in making a pyelogram in the case that he presented; but it should be emphasized that, as a rule, pyelography should not be employed in young infants. The danger of absorption, infection and shock is too great. I also wish to emphasize the fact that it is inadvisable to make bilateral pyelograms. It has been my experience that this is not alone a dangerous procedure, but is also unnecessary. It is much better to wait a few days and then make the second pyelogram, if necessary.

Dr. Herman L. Kretschmer, Chicago: I agree with Dr. Stevens that strictures of the urethra are overlooked. Why? Urologists explore the male urethra as a routine, looking for urethral strictures. As urology developed, our attention was focused to the higher urinary tract, and we are now looking for strictures in the ureters as a routine. I think that strictures of the urethra in females, however, are often overlooked. I frequently find urethral strictures in women who are thought to be neurotic. I think we must include lesions of the urethra as an etiologic factor in the production of bladder symptoms in women. Regarding pyelitis of pregnancy, I take exception to some points. I agree that theses cases are overlooked, but I do not agree with Dr. Stevens on his statistics. I think that 1 per cent. is far too low. Dr. Falls found 5 or 6 per cent. in the obstetric department at Iowa City. It is easy to diagnose pyelitis of pregnancy. Anybody can make the diagnosis without a culture and without instrumentation, by means of the history and examination of the urine obtained with a catheter by noting the presence of pus and bacteria in the catheterized specimen. As to the dilatation, whether it completely disappears or not I do not know; but in ten days after delivery this dilatation has always disappeared to a large extent. In the pyelograms of others and in our own we have always found that most of the dilatation involved the ureter. That agrees with the statistics of Hirsch, who found at necropsy that the dilatation involved the ureter more than the pelvis of the kidney. I cannot quite reconcile myself to the statement of Dr. Stevens that the pressure on the ureters produces the dilatation in the pelvis during pregnancy. I should think that sufficient pressure to produce obstruction would produce necrosis. Most of our cases have been bilateral, and I agree with Dr. Braasch about regurgitation up into the pelvis of the kidney. This occurs very commonly, and I believe that the fact is often overlooked.

Dr. Albert E. Goldstein, Baltimore: I am glad to hear that Dr. Stevens uses an olive tipped bougie for diagnosing urethral strictures. This is also very important in diagnosing ureteral strictures. As a rule, we hear of one passing a catheter for diagnosing ureteral strictures, but I think we should employ a bulb or olive tipped bougie the same as for urethral strictures. One should pass the bougie, not determining the presence of stricture on the entrance of the bougie but on the hang of the bulb on coming out. In dilating, I agree with Dr. Stevens up to 8 or 9, but do not see how a Garseau catheter will do good any farther than that; it will reach only a point about 9 or 10 and, therefore, is not large enough to dilate a stricture as it should be dilated. Passing the bulb will not be as painful if the patient is placed in the dorsal position. There is more pain when the knee-chest position is used. The important thing is a ureteral pyelogram. No stricture should be diagnosed without a ureteral pyelogram, and this should be made with the catheter low down, not with the tip in the pelvis of the kidney. The tip should be just beyond the orifice in the bladder. Strictures certainly are an entity. In view of the fact that Dr. Hunner is not here, I wish to defend him. He is very conscientious about his work and we must remember that, of the patients coming to Dr. Hunner, 95 per cent. come from all over the country for the purpose of having ureteral strictures determined. He looks for them and he does find them, while others do not even look for them. Three years ago I reported twenty-two ureteral strictures in the male, all determined by pyelograms. All had a dilatation. I agree with Dr. Braasch about bilateral pyelography, and think that it should not be done.

Dr. B. A. Thomas, Philadelphia: I wish to suport Dr. Stevens' statement as to pressure on the ureter being the cause of pyelitis. I have examined a number of pregnant women with the cystoscope, and even when there was no retention in the bladder I have frequently found from 10 to 25 c.c. of urine, infected, above the obstruction which was difficult to pass; so I feel that his position is correct, at least in some cases, if not in the great majority. I have always felt that external pressure on the ureter was a factor in the development of pyelitis. I wish to know how long Dr. Stevens considers it advisable to maintain catheter drainage in these cases of pyelitis; whether it is carried out for weeks or months, if necessary. About stricture of the ureter, it has been my experience to find always an associated, chronic, granular ureteritis in the ureters, which I agree is quite frequent, and often some small polypi which require treatment aside from the drainage; namely, fulguration or the application of strong solution of silver nitrate.

Dr. Louis Clive Jacobs, San Francisco: In order to emphasize the frequency of occurrences of urethral strictures, I wish to report two cases. One woman, whose previous health had been excellent, noticed frequency of urination, with a profuse amount of urine passed. She came to my office after two or three months, complaining of severe backache. Examination revealed pus cells in the urine. I instructed my nurse to catheterize the patient, and this she was unable to do. I ascertained that I could not pass a small sized catheter, but with considerable difficulty I passed a very small sound and then a small sized ureteral catheter, and withdrew the urine. There were many pus cells in the urine. Under treatment, the pus cells in the urine and the urinary symptoms have all disappeared. I attribute this to the dilation of the urethra. In the other case, the patient had a stricture of the urethra and, following dilation of the urethra, she was completely relieved and the urinary symptoms have since disappeared.

Dr. Martin Moloney, San Francisco: There are two fallacies in connection with stricture of the ureter; the fallacy of diagnosing what is a stricture of the ureter and the fallacy of dilating from below a stricture of the ureter. I had a case of clearly defined stricture of the ureter with a well marked hydronephrosis and stones above the stricture. It looked like a tube with a string tied round it tight, and it was dilated above and below; it could not be mistaken for a kink. The more I attempted to dilate this tight, apparently congenital stricture from below through the bladder, the more difficult it became. Slow, prolonged dilation from above, up to 18 or 20 F., has given a successful result in this case. Now, six years after, the kidney pelvis is back almost to normal size, and free from renal colic which existed for fourteen years. With the exception of a narrow ureteral orifice, unless we diagnose by roentgenogram a definite outline of stricture of the ureter, showing dilatation above and below it, the statement is fallacious that we have cured a stricture, of the existence of which we have no definite proof.

Dr. Joseph L. Boehm, New York: I wish to know what Dr. Stevens' experience has been in regard to ureteral caruncle, in regard to ureteral stricture, and also whether he has had much difficulty in catheterizing ureters when there is a large inflammatory mass, be it tubal or tubo-ovarian. Regarding Dr. Braasch's statement about catheterizing young infants, a German firm is now making a small catheter for infants. I think that in Germany the practice of catheterizing young infants is much more common that it is in this country. It is advocated in many places.

Dr. Charles P. Mathe, San Francisco: Occasionally, in making urologic examinations on women, I have found polypi in the urethra and on the vesical neck associated with urethral strictures, sometimes causing symptoms of irritability. These can be cleared up by fulguration. I asked Dr. Stevens in what percentage of cases he finds these polypi. Reversal of peristalsis of the ureter as causing ascending infection of the kidney has been mentioned. I firmly believe in this. In 1907, Alksne irritated the bladder end of the ureter by electrical stimuli, and caused pronounced antiperistalsis of the ureter. I have seen materials, such as protargin mild, injected into the bladder for the purpose of prophylaxis against infection, revealed at necropsy in the lobules and glomerular capsule of the kidney. Substances opaque to the roentgen ray, having been injected into the bladder for diagnostic purposes, have been revealed by roentgenograms in the renal pelves.

Dr. William E. Stevens, San Francisco: We occasionally see strictures of the female urethra in the absence of urethritis or trigonitis, when no pus is present in the urine, and in the absence of positive endoscopic findings. As to pyelography, I do not employ this procedure, as a rule, in infants or young children, until treatment directed toward a suspected pyelitis has been given a trial and proved unsuccessful. Gonorrhea is a very important factor in the etiology of urethral strictures. I had occasion some time ago to examine a large number of prostitutes, all of whom had suffered from gonorrhea, and the percentage of strictures in these women was very much higher than that found in other patients. I wish to emphasize the fact that very little pressure on the ureter is required to produce obstruction, and I believe that pressure from a pregnant uterus is an important factor. As I mentioned in my paper, I consider ascending infection common in pyelitis occurring during pregnancy. The majority of ureteral strictures are in the lower third, and, if tight enough to produce symptoms, can usually be detected by means of an ordinary ureteral catheter. I do not think it justifiable to leave catheters in the ureters more than two hours because of the inflammatory reaction that is apt to occur if they are retained for a longer period of time. I have occasionally found caruncles associated with urethral strictures. I have seen no complications following ureteral dilation in the presence of tubal or tubo-ovarian inflammation. We frequently find polypi at the bladder sphincter associated with strictures of the female urethra.

Cardiac Murmurs in Aneurysm.—No murmur of any kind, systolic or diastolic, is audible in cases of thoracic aneurysm unless the thoracic orifice is involved. There is a general belief that a systolic aortic murmur may indicate the presence of an aneurysm. This is a mistake.—J. M. Gill: *Guy's Hosp. Rep.* **73**:418 (Oct.) 1923.

POSITION OF THE STOMACH, LIVER AND COLON

RESULTS OF A ROENTGENOLOGIC STUDY IN SIX HUNDRED HEALTHY ADULTS *

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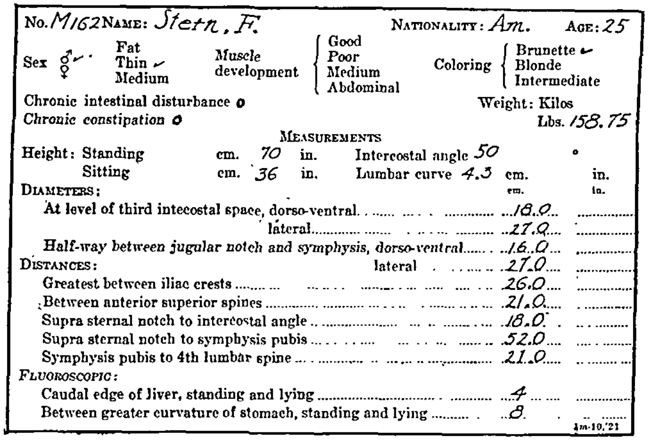
In the last twenty years much has been written about the position of the stomach, about gastroptosis, and about visceroptosis, but no series of observations on the stomach position in a large number of healthy persons has been recorded. The prevailing idea of what is the normal position of the stomach and other abdominal viscera has been gained largely from the observation of persons suffering from some intestinal disturbance, or from postmortem studies such as those made by Bryant. By the use of such material, the normal position of the viscera cannot be established.



No. M162 Name: Stern, F.   Nationality: Am.   Age: 25

Sex ♂ ✓ ♀   Fat / Thin ✓ / Medium   Muscle development: Good / Poor / Medium / Abdominal   Coloring: Brunette ✓ / Blonde / Intermediate

Chronic intestinal disturbance o   Weight: Kilos
Chronic constipation o   Lbs. 158.75

Measurements

Height: Standing cm. 70 in.   Intercostal angle 50 °
Sitting cm. 36 in.   Lumbar curve 4.3 cm. in.

	cm.	in.
Diameters:		
At level of third intecostal space, dorso-ventral	18.0	
lateral	27.0	
Half-way between jugular notch and symphysis, dorso-ventral	16.0	
Distances: lateral	27.0	
Greatest between iliac crests	26.0	
Between anterior superior spines	21.0	
Supra sternal notch to intercostal angle	18.0	
Supra sternal notch to symphysis pubis	52.0	
Symphysis pubis to 4th lumbar spine	21.0	
Fluoroscopic:		
Caudal edge of liver, standing and lying	4	
Between greater curvature of stomach, standing and lying	8	

1m-10,'21

Fig. 1.—Measurements recorded of each subject used in this series: Weight is in pounds; height is in inches; all other measurements in centimeters.

This preliminary report gives the results of fluoroscopic and roentgenographic study of the position of the viscera in 600 healthy young adults, an equal number of men and women, most of them students in the University of California. Subjects with a history of chronic gastro-intestinal trouble or chronic constipation were excluded.

METHOD

Physical characters of the subjects that may modify the position are recorded as shown in Figure 1. All measurements except height and weight are in centimeters. Height is measured with the subject in stocking feet, and weight is taken with the subject in ordinary indoor clothing.

The method of measuring the intercostal angle is shown in Figure 2. The diverging lines are drawn from the junction of the seventh ribs with the sternum, along the caudal borders of the cartilages of the lower ribs. A point on the sternum in the median line of the body at the caudal border of the corpus sterni is taken as the apex from which the angle is measured with a contact goniometer.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The depth of the lumbar curve is obtained by placing a yardstick longitudinally in the furrow on the dorsal surface of the body and measuring the greatest distance between the edge of the yardstick and the body (Fig. 3).

To determine the strength of the abdominal muscles, the subject lies on a table and, keeping the heels on the table, comes to a sitting position as many times as possible without intervals of rest.

The technic of taking the roentgenograms is as follows: The subject is given 2 ounces of barium sulphate the previous night, and eats no breakfast on the morning when the picture is taken. Immediately after the subject takes 4 ounces of barium sulphate in 14 ounces of malted milk mixture, a fluoroscopic examination is made and the positions of the caudal border of the stomach and of the liver are marked on the body. A similar examination and corresponding markings are made with the subject supine. The distance between these marks due to change in position of the subject is designated as the excursion of the stomach and liver. The roentgenogram is taken with the subject standing and the ventral surface of the body nearest to the film. The film is centered at the level of the highest point of the iliac crests. The tube target is placed at this level and at a distance of 30 inches from the film.

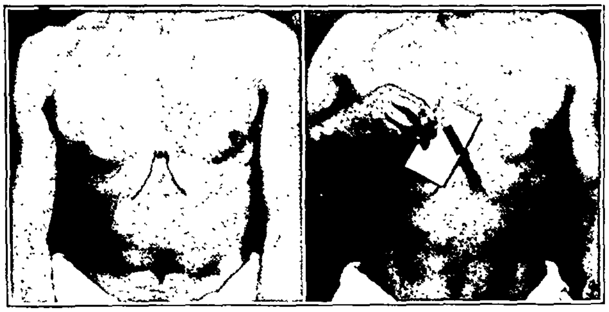


Fig. 2.—Method of measuring intercostal angle.

As a fixed level from which to measure the position of the viscera, we use a line drawn between the highest points of the iliac crests and call it the interiliac line. The umbilicus is not used as a reference point because, as shown by Johnson, its position with reference to the distance between the sternal notch and the symphysis pubis varies in different persons.

STOMACH

The position of the stomach has been described by some investigators with reference to the position of its greater curvature, by others with reference to its lesser curvature, by some with the subject standing, by some with the subject supine. These results consider the position of the greater curvature, the lesser curvature and the pylorus, and are obtained with the subject standing. The position of the greater curvature is also measured with the subject supine. A distinct difference is found in the position of the stomach and the liver in men and in women; hence the results are given separately for each sex.

In the accompanying diagrams, the space cephalad and caudad of the interiliac line is divided into zones, each of which represents a distance of 2.5 cm. (1 inch).

In 25.6 per cent. of the 300 men, the most caudal part of the greater curvature is cephalad of the interiliac line (Fig. 6). Its most common position is in the second caudal zone, from 2.5 to 5 cm. caudad of the line. It is found here in 26 per cent. of the men. Its ordinary limits of variation are from 7.3 cm. cephalad to 13.5 cm. caudad, but in one subject its cephalic limit was 11 cm.

In 13 per cent. of the 300 women, the most caudal part of the greater curvature is cephalad of the interiliac line; in 87 per cent. it is caudad of the line (Fig. 7). Its most common position is in caudal zone 3, 5 to 7.5 cm. caudad of the interiliac line. But in 46 per cent. it is more than 5 cm. caudad of the line, in 24 per cent. it is more than 7.5 cm. caudad of the line, and in 7.6 per cent. it is more than 10 cm. caudad of the line. Its ordinary limits of variation in position are from 6.5 cm. cephalad to 13.7 cm. caudad, but in one subject the cephalic limit was 9 cm.

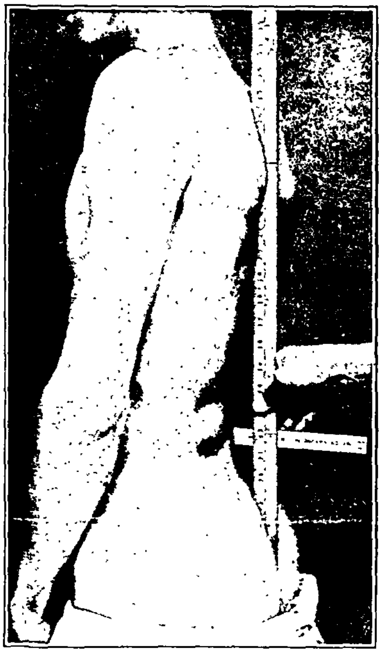


Fig. 3.—Measurement of lumbar curve.

In 80 per cent. of the entire group of these healthy men and women, the stomach extends caudad of the interiliac line, and the most caudal part of the greater curvature is frequently found in the true pelvis. Our results agree with those of others in showing that the stomach is placed lower in the body in women than in men.

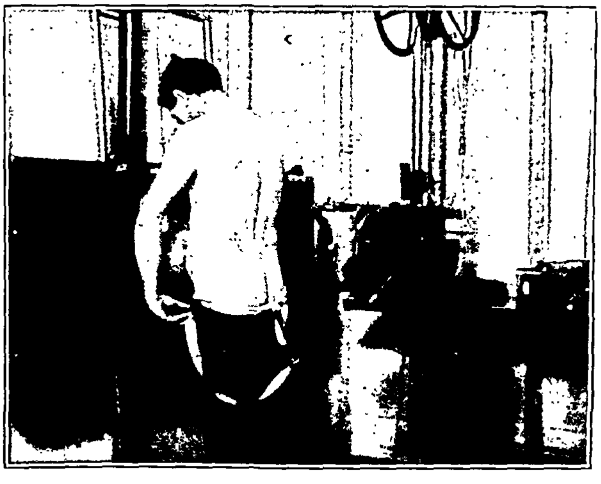


Fig. 4.—Technic of taking roentgenograms.

The most caudal p[illegible] of [illegible] lesser cu[illegible] could be measured in 296 [illegible] ra

In 86.7 per cent. of these it is cephalad of the line; in 13 per cent. it is caudad of the line. In 4.3 per cent. it is more than 2.5 cm. caudad of the line (Fig. 8). Its most common position in these men is in the first cephalic zone. Its limit of variation in position is from 15 cm. cephalad to 7 cm. caudad of the line.

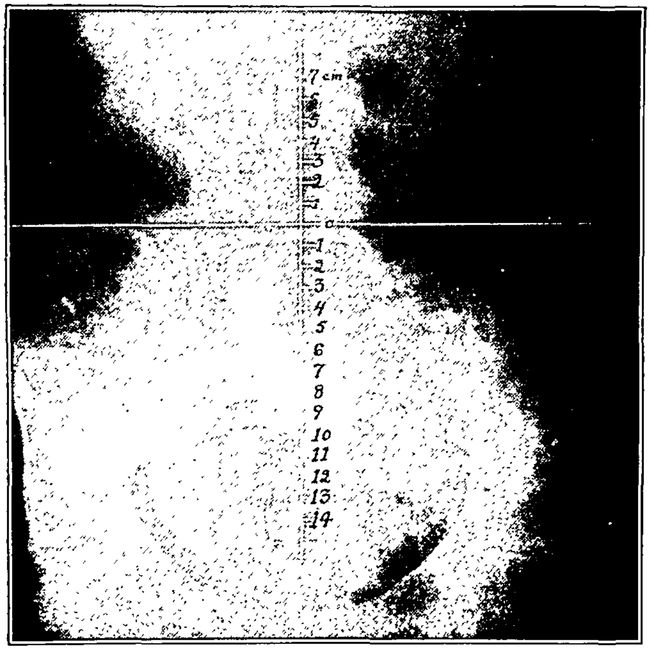


Fig. 5.—Interiliac line drawn between highest points of crests of the ilium: This is about the level of the umbilicus; scale measures distance in centimeters cephalad and caudad of this base line.

The most caudal part of the lesser curvature could be measured in the roentgenograms of 298 women. In 71 per cent. of these it is cephalad of the line, in 29 per cent. it is caudad of the line, and in 10 per cent. it is more than 2.5 cm. caudad (Fig. 9). The most common position is the same as in men, in the first cephalic zone. But it is caudad of the interiliac line in twice as many women as men. Its limits of variation in position are from 13 cm. cephalad of the line to 7 cm. caudad of the line.

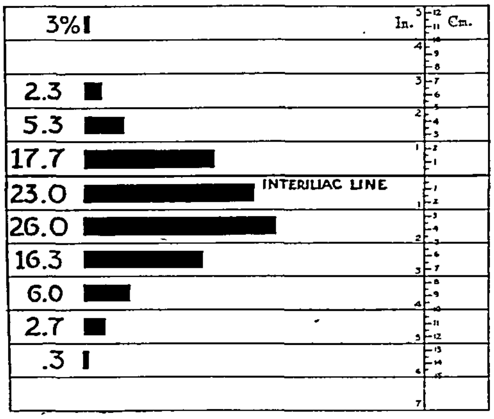


Fig. 6.—Percentage occurrence of greater curvature of stomach in men at different levels cephalad and caudad of the interiliac line: Average position is 2.5 cm. caudad of the interiliac line.

In 96.6 per cent. of 293 men, the pylorus is found cephalad of the interiliac line, and in 2.7 per cent., caudad of the line (Fig. 10). Its most common position is in Cephalic Zone 2. The limits of variation are from 14.5 cm. cephalad to 8 cm. caudad of the line.

In 96 per cent. of 296 women, the pylorus is found cephalad of the interiliac line, and caudad of the line in 4 per cent. (Fig. 11). Its most common position in women is the same as in men. The limits of variation are from 15 cm. cephalad to 2.5 cm. caudad of the base line.

The most common position of the most caudal part of the greater curvature of the stomach is, in this group of 600 subjects, in Caudal Zones 2 and 3, between 2.5 cm. and 7.5 cm. caudad of the interiliac line, and in 36.3 per cent. it is more than 5 cm. caudad of the line. The most common position of the most caudal part of the lesser curvature is in Cephalic Zones 1 and 2, between the interiliac line and one 5 cm. cephalad of it, but in 20.6 per cent. it is caudad of the line. The most common position of the pylorus is in Cephalic Zone 2, between 2.5 and 5 cm. cephalad of the line; in 3.3 per cent. it is caudad of the line.

The range of the normal position of the most caudal part of the greater curvature is from 13 cm. caudad of the line to 7.8 cm. cephalad. The range of the normal position of the most caudal part of the lesser curvature is from 7.5 cm. caudad of the line to 15 cm. cephalad.

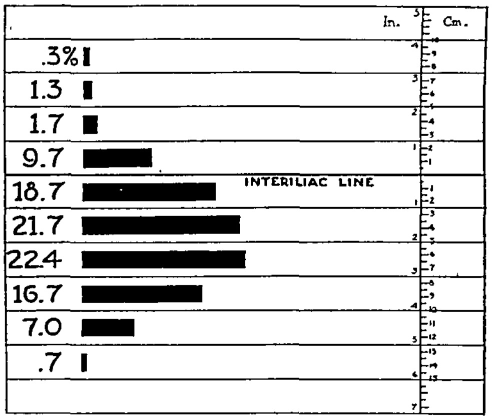


Fig. 7.—Percentage occurrence of greater curvature of stomach in women: Average position is 4.5 cm. caudad of the interiliac line.

These results give a new picture of the normal position of the stomach. It is lower than has been generally accepted. It is frequently found in the true pelvis in young adults with no symptoms of stomach or intestinal disorders. They also demonstrate that the use of the term gastroptosis is seldom justifiable.

Roentgenograms of ten subjects were taken more than once, at different times, under as nearly as possible the same conditions. The individual variation in the position of the most caudal part of the greater curvature of the stomach in these subjects is from 0.6 to 2.5 cm. This variation is small, in view of the flexibility and mobility of the walls of the stomach. It indicates that under similar conditions the stomach of any one person will be found at all times in nearly the same position.

The distance that the greater curvature of the stomach moves when the subject lies down we call the excursion. In both men and women the smallest excursion is zero; the largest is 16 cm. in men and 17 cm. in women. The most common excursion is between 9 and 10 cm.

In a man whose stomach excursion is zero, the position of the most caudal part of the greater curvature is 0.8 cm. caudad of the interiliac line. In the one whose stomach excursion is 16 cm., its position is 1 cm. caudad of the line when the subject is standing. That is, with the subject standing, the position of the most caudal part of the greater curvature of the stomach is practically the same in subjects whose stomach excursions are respectively the smallest and the largest. In women whose stomach excursions are, respectively, 17 and 16.5 cm., the stomachs are not low. The most caudal part of the greater curvature is 7.5 cm. caudad of the interiliac line in the one and 8 cm. in the other. The excursion of the lowest two stomachs in women is moderate: 10 cm. in one and 7.4 in the other. The latter is less than the common excursion. Long stomachs tend to have a longer excursion than short stomachs, but there seems to be no definite relation between the length of the excursion and the position of the curvature when the subject is standing.

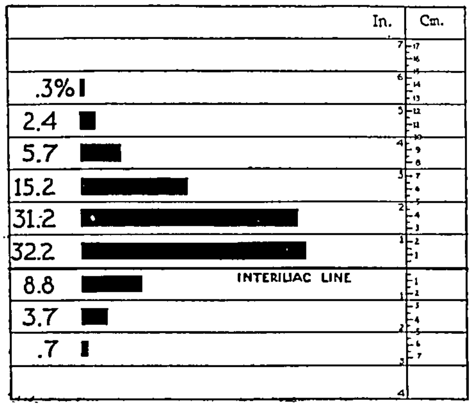


Fig. 8.—Level of occurrence of lesser curvature of stomach in men: Average position is 3 cm. cephalad of the interiliac line.

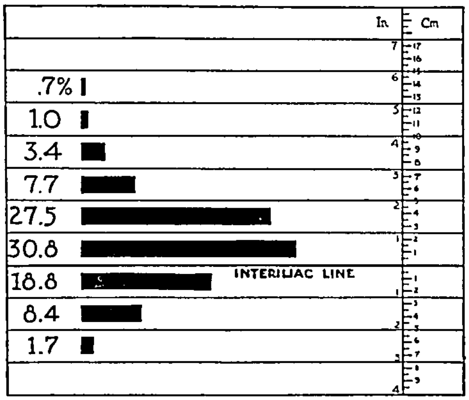


Fig. 9.—Level of occurrence of lesser curvature of stomach in women: Average position is 1.75 cm. cephalad of the interiliac line.

This lack of any definite relation between the position of the subject when standing and the excursion of the stomach is explained, in part at least, by the different shapes the stomachs assume as a result of their excursion. When the subjects lie down, the contents of many stomachs flow largely to the cardiac ends, and the shape of the stomach becomes that of an inverted chemical flask with a curved neck. In such cases the position of the stomach becomes more horizontal, the pylorus passing farther to the right of the median line of the body. In other cases the contents of the stomach do not pass to its cardiac end, but the stomach becomes shorter and broader, owing to an increase in its circumference. It is largely because of this excursion that the surgeon at operations and the student on the dissecting table find the stomach so far cephalad of the interiliac line.

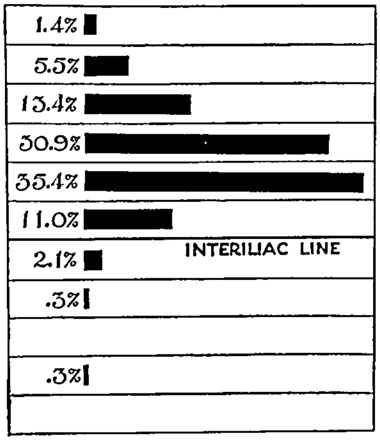


Fig. 10.—Level of pylorus in men: Average position is 5.3 cm. cephalad of the interiliac line.

Schlesinger's generally accepted classification of stomachs according to their tone into orthotonic, hypertonic, hypotonic and atonic is used in this paper with some modification. He describes the hypertonic stomach as high and short, broadest at its cardiac end, with its walls steadily narrowing to the pylorus. This gives it, he says, a steerhorn form and an oblique or transverse position, with its lower border well above the umbilicus. This, however, is only one of the kinds of hypertonic stomach.

Figure 12 shows a second form. The stomach is short and broad, with its walls approximately parallel and the most caudal part of the greater curvature caudad of the interiliac line.

A third form is found in Figure 13. It is very short and broad, its walls approximately parallel, its pyloric part held at right angles to the cardiac portion, and the most caudal part of the greater curvature well above the interiliac line. This type has still other forms and positions.

The hypertonic stomach is more common in men, the hypotonic in women. The former is found in 17.1 per cent. of men and 7.1 per cent. of women. The hypotonic occurs in 3.6 per cent. of the men and 15 per cent. of the women.

The most common position of the hypertonic stomach is in Cephalic Zone 1, between the interiliac and a line 2.5 cm. cephalad of the line; but in 37.5 per cent. of the stomachs of this type in the women, and in 23.4 per cent. in the men, the most caudal part of the greater curvature is found caudad of the interiliac line.

The orthotonic stomach is found in a large majority of both men and women, and in almost equal numbers in the two sexes. It is found in 78.6 per cent. of men and in 77.3 per cent. of women.

ABDOMINAL MUSCLES

One of the most widely accepted theories concerning the physical factors that modify the position of the stomach maintains that strong abdominal muscles hold the stomach up in what has been called the normal position; that a person with weak abdominal muscles and a low stomach could gain a high stomach by taking exercises to increase the strength of the abdominal musculature.

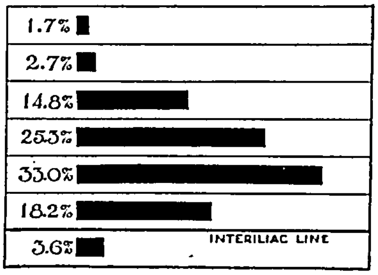


Fig. 11.—Level of pylorus in women: Average position is 4.8 cm. cephalad of the interiliac line.

Most physical types of healthy men and women are well represented in the group of young people formin
the basis of this study. The sedentary type, tl
those who work at hard manual labor duri

summer vacations, those who spend much time in outdoor sport, those who idly amuse themselves, the sthenic and the hyposthenic, with a few of the hypersthenic and asthenic, are all there.

Out of this group of 600 students, at least 200 are athletes or are majoring in physical education. Their general musculature and their abdominal muscles are considerably above the average in development, but the position of their stomachs is like that of the other 400: low in some, high in others. Of the ten men with the weakest abdominal musculature, the most caudal part of the greater curvature is cephalad of the interiliac line in two. In six it is in the zone of most common occurrence in men, and in only two is it caudad of this zone. In eight of the men with the strongest abdominal musculature, the most caudal part of the greater curvature is caudad of the interiliac line. In one of them it is 7 cm. caudad and in one 11.3 cm. caudad of the line.

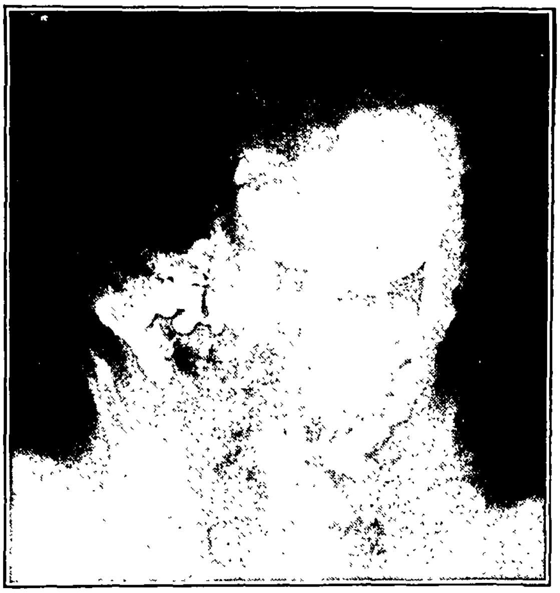


Fig. 12.—A hypertonic form of stomach not described by Schlesinger.

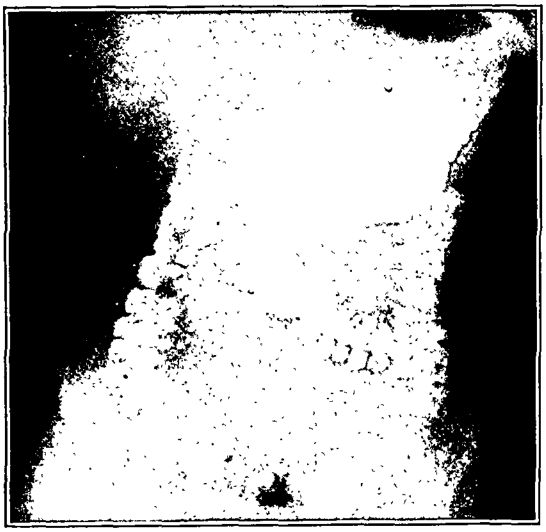


Fig. 13.—A hypertonic form of stomach not described by Schlesinger.

To test the theory that the position of the stomach varies with the strength of the abdominal muscles, the man with the best body development and the strongest abdominal muscles in the group of 300 took daily the sitting up exercise given commonly to increase the strength of the abdominal muscles. At the start he could do this exercise sixty-seven times; at the finish, he did it 300 times. At the finish, with the great increase in strength of abdominal muscles, the stomach was 1.3 cm. farther caudad than at the start.

Practically the increase in the strength was negligible so far as it affected the position of the stomach, for the change in the position of the stomach was within the limits of variation that may occur in the same person on different days.

A similar relation between the strength of the abdominal musculature and the position of the stomach is true in women. Some of them with the best developed general and abdominal musculature had the caudal part of the greater curvature of the stomach more than 7 cm. caudad of the line.

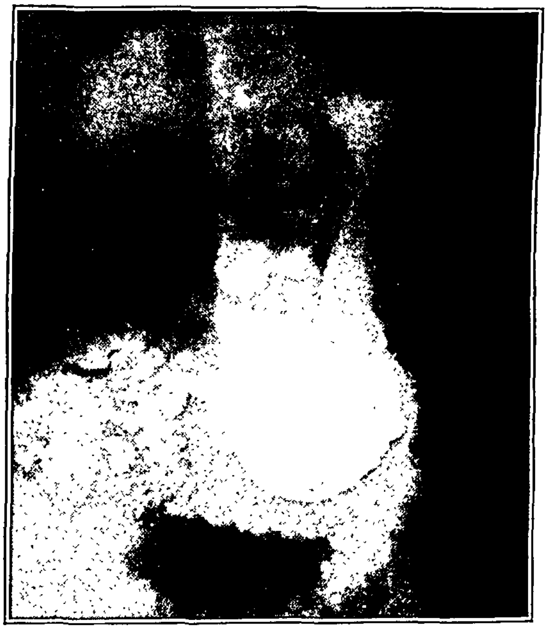


Fig. 14.—Strong abdominal musculature in male, with most caudal part of greater curvature 4.3 cm. caudad of interiliac line.

These findings have demonstrated that the strength of the abdominal musculature has practically no effect on the position of the stomach.

LOSS AND GAIN OF WEIGHT

In three subjects the effect of loss or gain of 20 pounds was observed. One athlete sprained his ankle, and as a result of enforced quiet gained 20 pounds. The position of the most caudal part of the greater curvature when he weighed 184 pounds was 0.4 cm. caudad of the interiliac line, and when he weighed 164 pounds it was 2 cm. caudad of the line, a change in position caudad of 1.6 cm.

Two other students by dieting lost 20 pounds each. In one of them, a woman, the change in position of the greater curvature was 3.9 cm. cephalad; in the other it was 0.5 cm. caudad. In two of these three cases, the change in position of the greater curvature was less than the variation that we have found in one person on different days, and in one case it was only 1.4 cm. more. So few cases are no proof of what may take place, but they suggest that a change of weight of 20 pounds causes a negligible change in the position of the stomach.

The general relationship of bodily habitus to the position of the stomach was pointed out by Obrastow, as a result of observations made by percussion and auscultation. This was confirmed by Mills and Carman by the use of roentgen rays. Mills designates his dominant types as hypersthenic and asthenic, and in these we find that the relationship of bodily habitus to stomach position is quite definite. It is not so definite in the major, sthenic and hyposthenic types, and still less definite in the subtypes.

The position of the liver was determined in 250 men and 250 women. Its most caudal part, as seen in dorsoventral roentgenograms, is caudad of the interiliac line in 53.2 per cent. of the men and in 41.2 per cent. of the women. The liver excursion, the distance the liver moves when the subject lies down, varies from zero to

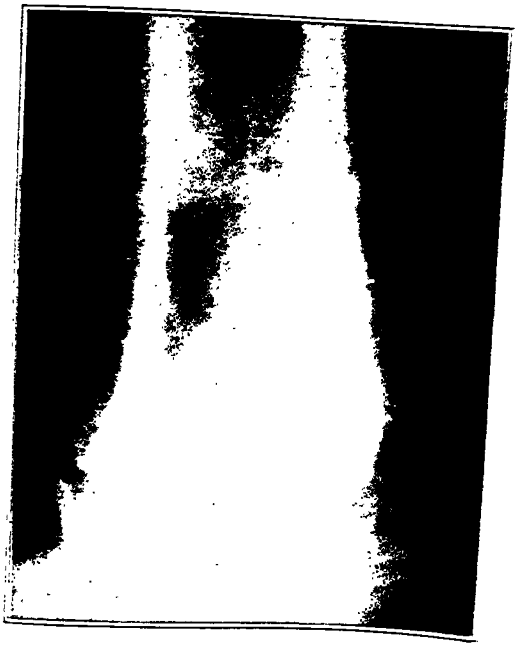


Fig. 13.—Strong [illegible] [illegible] [illegible] [illegible] [illegible] cm. caudad of [illegible] line.

9 cm. It is interesting to find that the position of the stomach is lower in women than in men, and the position of the liver is lower in men than in women.

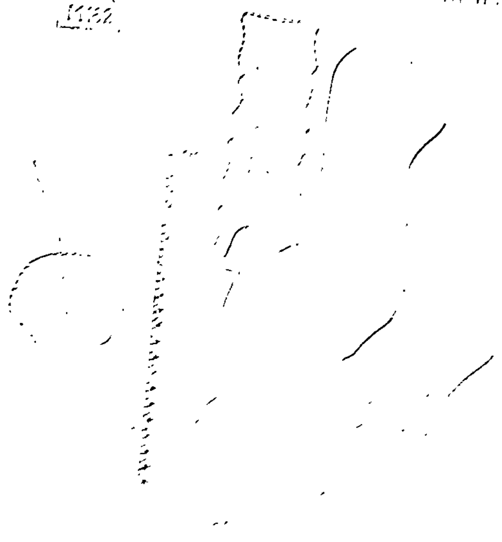
The colon also has a large range of normal positions and shapes. The hepatic flexure may be caudal of the interiliac line or several centimeters cephalad; the splenic flexure may be caudal of the line or extend cephalad almost to the diaphragm; [illegible] flexure may be high and the other low in the same person.

The transverse colon is most variable in position; in these 600 subjects it is [illegible] stomach, sometimes in contact with the [illegible] the dipping far caudad [illegible] has most often the shape of a [illegible] caudad. It is frequently [illegible] as low as the symphysis [illegible] part of the colon is [illegible] in position; in a few [illegible] cephalad. The [illegible] must be called normal [illegible] [illegible] and 22.

SUMMARY

1. The long stomach, commonly reaching from 3 to 7 cm. caudad of the interiliac line and often into the true pelvis, is found in 80.6 per cent. of this group of healthy adults. This type of stomach, with its [illegible]

Fig. 22.



[illegible]

4. The strength of the abdominal muscles has little or no influence on the position of the stomach.

5. The use of the terms gastroptosis and coloptosis is seldom justified.

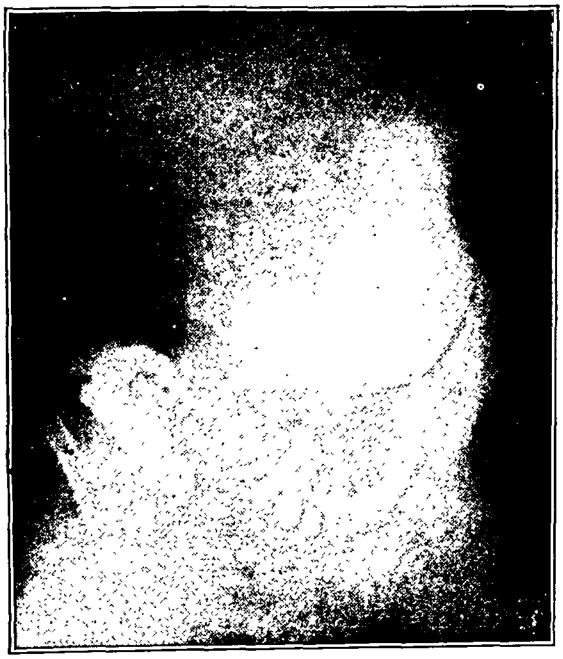


Fig. 18.—Common form and position of colon in male.

6. With the subject standing, the liver extends caudad of the interiliac line in a majority of the men and in a large percentage of the women. It reaches farther caudad in men than in women.

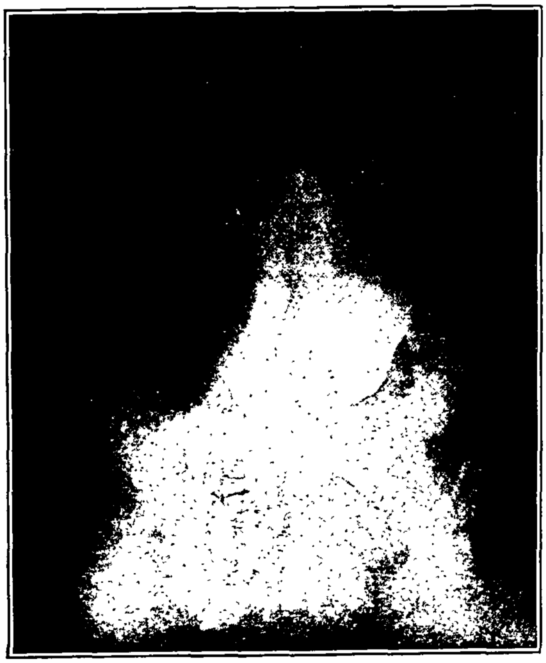


Fig. 19.—Common position of colon in female.

7. The common practice of putting patients to bed with a high diet and certain exercises prescribed to change the position of the stomach does not produce its beneficial effects by changing the position of the stomach.

ABSTRACT OF DISCUSSION

Dr. Seale Harris, Birmingham, Ala.: I have been interested in the subject of visceroptosis for a number of years, because, ever since the advent of the roentgen ray, many patients have come with a diagnosis of "fallen stomach," and some have been led to believe that it is an operable condition. About three years ago, my associate, Dr. Chapman and I undertook a clinical and roentgenographic study of a thousand consecutive cases of gastro-intestinal disease for the purpose of determining the normal position of the stomach and intestines. We found that in about 55 per cent. gastroptosis was present—I mean that the stomach, in the standing position, was more than 2 inches below the umbilicus. Our conclusions were that the position of the stomach has practically nothing to do with its function; that so long as the tonus of the stomach and intestines is normal, and so long as those viscera are freely movable, it is all right so far as the patient is concerned. It is the lack of tone rather than the visceroptosis that causes symptoms. We studied the same patients in the standing, prone and supine positions. We found that in some the lower border of the stomach would be resting on the brim of the pelvis in the standing position, but that in the supine position the stomach would gravitate upward above the umbilicus, to the so-called normal position. In other words, the contour of the spinal column and the smooth surfaces of the viscera enable the stomach and intestines to slide back into position, thus showing the folly of having the foot of the bed elevated in treating these cases. In the examination of the patients in the standing position, we found that voluntary contraction of the abdominal muscles would change an atonic stomach into a hypertonic one. The most important thing in the treatment of visceroptosis is to put on fat. When weight increases, the first place in which fat is deposited is the abdomen. In some cases in our experience, with the increase in fat, and increase in tone of the abdominal muscles, the stomach has been raised 2 or 3 inches. As to the value of exercise in these cases, I think these patients are usually what Bryan calls the chronic nervous invalid. They are in a state of chronic fatigue. If exercise is begun too soon, we increase the chronic fatigue. The patient should have a period of rest of three or four weeks and then begin graduated exercises, not only of the abdominal muscles, which are quite important, but general exercises. The abdominal belt is of very little value in these cases, except as a temporary measure. The most uncalled for operation in all surgery is gastropexy. I have seen a number of operations of this kind with bad results. It does the very thing that it ought not to do: It fixes the stomach or

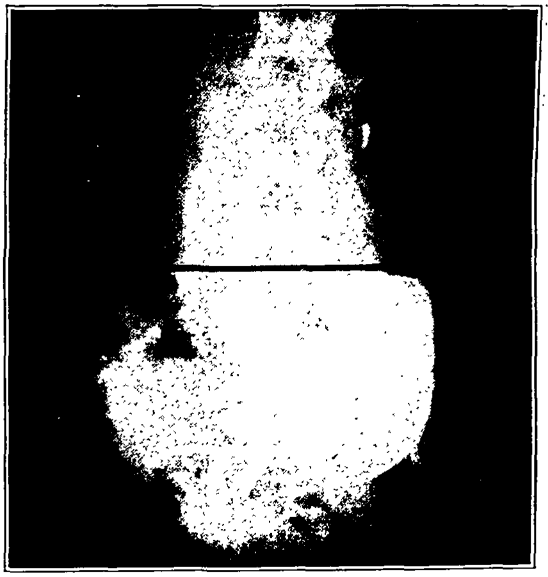


Fig. 20.—Normal long stomach in male: 8.8 cm. caudad of interiliac line.

colon when it ought to be freely movable. Visceroptosis goes back to our ancestors. They are responsible for this condition more than any one else. The atony that sometimes goes with it is a thing with which we can deal. Many of the finest men and women I know, those who are doing the great things in this world, are people who have visceroptosis. It is important to impress on the patient that it does not make any difference what part of the abdomen the stomach rests in; it is a question of tone.

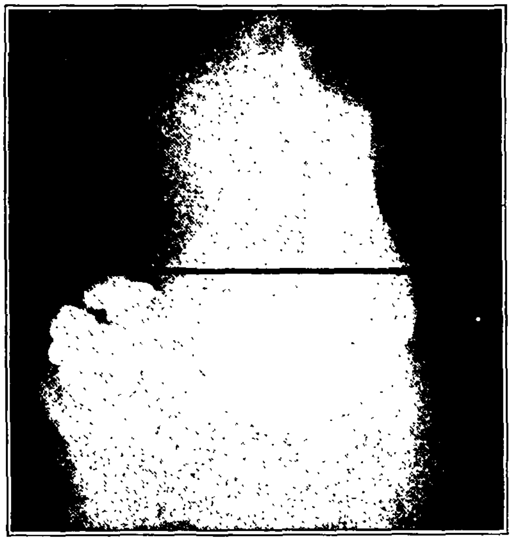


Fig. 21.—Normal long stomach in female: 11 cm. caudad of interiliac line.

Dr. E. C. Fishbaugh, Los Angeles: It is not uncommon to have women enter the office bent forward and holding their abdomen, and bringing a diagnosis of visceroptosis. I think it is just as normal for some persons to have a low placed stomach as for some to have short legs and others to have long legs. It is part of the normal construction. When, in my cases of hyperfeeding on a milk diet, there has been marked increase in weight, no marked change in the position of the stomach has been noted. The great improvement following the gain in weight is probably not due to change in position of the stomach and intestines but to increased intra-abdominal pressure.

Dr. G. R. Satterlee, New York: I think that we are now finding out quite generally that the position of the stomach has no very important bearing on the general health, and also that we are coming more and more to regard the stomach as being one of the less vital parts of the gastro-intestinal tract. I was one of the earliest to study the gastro-intestinal tract thoroughly by means of the roentgen ray. I started out with the idea, as many of us have done, that, because gastroptosis was so frequent in patients with gastro-intestinal and general symptoms, posture and support were fundamental in the treatment and care. Since that time I have been gradually eliminating one or both of these factors. And yet, I have seen a large number of patients with gastroptosis restored to health by the simple means of posture, abdominal support and elevation of the foot of the bed. Therein I differ somewhat from Dr. Harris' observations and theories. I have seen patients with a considerable amount of infection gain 20 or 30 pounds after correction of posture, without any very particular hygiene or treatment. However, instruction in general hygiene is important, and removal of foci of infection is indispensable. In gastro-enteroptotic patients, two factors are frequently overlooked: the care of the mouth and the study of the colon. The patients may be improved by general hygiene, but permanent results are frequently not obtained until oral infection is thoroughly eradicated. As the colon frequently is badly infected, the treatment should be directed particularly toward the care of this organ. Unless we treat these patients from the standpoint of both oral and colonic sepsis, the results will always be unsatisfactory.

Dr. R. O. Moody, Berkeley, Calif.: This study shows that the conditions clinically designated as visceroptosis and gastroptosis are common in healthy young men and women. The fact that patients said to be suffering from gastroptosis, after six weeks in bed with proper feeding and exercise, feel like new persons is not due to a change in the position of the stomach. Any run down, nervous person, put to bed for six weeks, with a forced diet and exercise, will be much benefited. The recovery of the patient is due to the improvement in the general condition, not to a change in the position of the stomach. Our results further indicate that increase in weight of as much as 20 pounds has little effect on the position of the stomach. Dr. Satterlee spoke of the effect of drawing in the abdominal muscles and pointed out what is a fact, that the stomach is forced immediately upward by such contraction of the muscles. But the inference he drew that the strength of these muscles has much effect on the position of the stomach does not follow. An increase in the strength of the abdominal muscles does not result in any such drawing in of these muscles. We think that this study demonstrates that the strength of the abdominal musculature is a negligible factor in the determination of the position of the stomach.

A NEW PROCEDURE FOR PERFORMING LITHOLAPAXY[*]

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AND
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During the last ten years, lithotomy has been written on extensively. Does this indicate that, in the advancement of surgical technic, lithotomy has become the operation of choice, or that litholapaxy is too dangerous a procedure? The advancement in prostatic surgery no doubt eliminates the stone cases that are complicated with a prostatic hypertrophy as these are today handled at the time of prostatectomy. We have always been of the opinion that in an uncomplicated case of vesical calculus lithotrity or litholapaxy is the operation of choice.

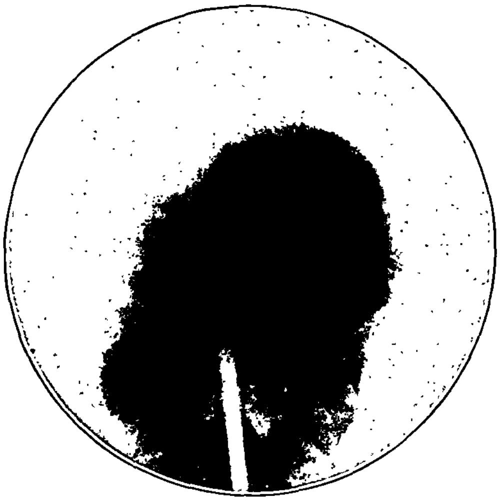

Fig. 1 (Case 1).—Lithotrite grasping stone.

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[*] From the Urological Clinic of the Hebrew Hospital.

[*] Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[*] Owing to lack of space, this article is abbreviated in The Journal by omission of a review of the literature. The complete article appears in the Transactions of the Section and in the authors' reprints.

OBJECTIONS TO THE PRESENT METHOD

Objections to the present method may be divided into two groups: (1) when the plain lithotrite is used, and (2) when the cystoscopic lithotrite is employed.

Under Group 1, the objections are that: (*a*) The operation is performed blindly. Everything depends on the sense of touch and good fortune. Neither the instrument nor the calculus is under the control of the eye. (*b*) There are possibilities of various accidents. (*c*) The operation is limited to those having had a long experience. Novices are excluded.

Under Group 2 the objections are that: (*a*) It is applicable only to small, soft stones (not exceeding 1 inch in diameter). (*b*) Accidents may arise, owing to the weak mechanical construction of the lithotrite. (*c*) The field is clouded from blood or crushed stone.

Not satisfied with the methods employed up to the present time, we attempted and devised a method by which the operation of lithotrity or litholapaxy is made a safe and rapid procedure, and at the same time visualized without the aid of the cystoscope. This is performed by combining litholapaxy with fluoroscopy in an air medium.

TECHNIC OF NEW METHOD

The patient is placed in a dorsal elevated position on the fluoroscopic table. Preparation is the same as for cystoscopy, washing the genitalia with soap and water and then with mercuric chlorid. The genitalia are then draped with sterile dressings. The operation should be performed under some form of anesthesia, which will be spoken of later.

It is essential for the external meatus to be sufficiently large to admit a large calibered instrument; therefore an external meatotomy is performed. A soft rubber catheter is inserted into the bladder, the urine emptied, and then the bladder irrigated with some antiseptic solution. The bladder is next examined under the fluoroscope and is located by observing the presence of the catheter. This is then drawn out so that there is no curling of the catheter. With a 50 c.c. syringe that will fit the catheter, air is injected slowly into the bladder to the full capacity as determined with fluid on some previous occasion. When the bladder is sufficiently distended, the catheter is removed. The calculus as seen under the fluoroscope appears as a dark shadow, and the air as a light shadow; therefore a direct contrast can be seen. Observations should be made as the air is being injected by an assistant, as the eye becomes better accommodated to the contrast of shadows. In the presence of a calculus, the air will be observed surrounding it.

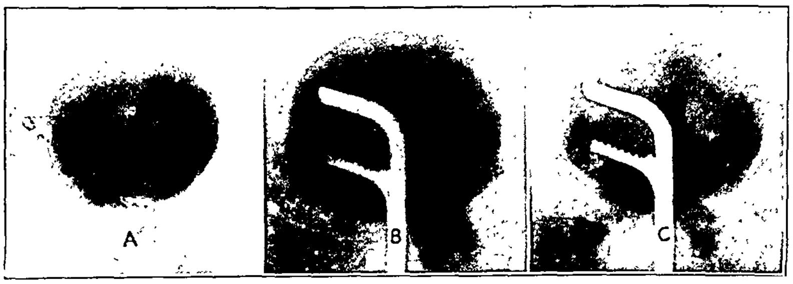

Fig. 2 (Case 2).—*A*, vesical calculi: air injection; *B*, lithotrite grasping stone; *C*, after crushing.

The lithotrite is next introduced into the bladder in the usual manner, special care being taken in passing it through the posterior urethra and then into the bladder. No pressure should be exerted. After the instrument has passed by the vesical neck, there should be no attempt made at pushing the instrument without observing conditions under the fluoroscope. With the fluoroscope, the beak can be seen in the bladder. This should be turned from side to side, and the blades opened and closed. With the blades open, which is easily seen, the calculus is again located and grasped. When the stone is caught between the blades, they should be locked. The beak of the instrument should be turned from side to side, and the calculus will be seen carried across at the same time. The next step is the crushing of the stone. This can readily be observed if the beak is turned to one side or the other. After the original stone is crushed, any large pieces that remain can be crushed likewise; or, if more than one stone is present, these can be treated in a similar manner. After the crushing procedure is completed, the blades are opened and closed two or three times under direct observation in order to force any small pieces out of the blades so that they can be brought together. The beak is then brought to the median line, turned upward, and the instrument removed with extreme gentleness.

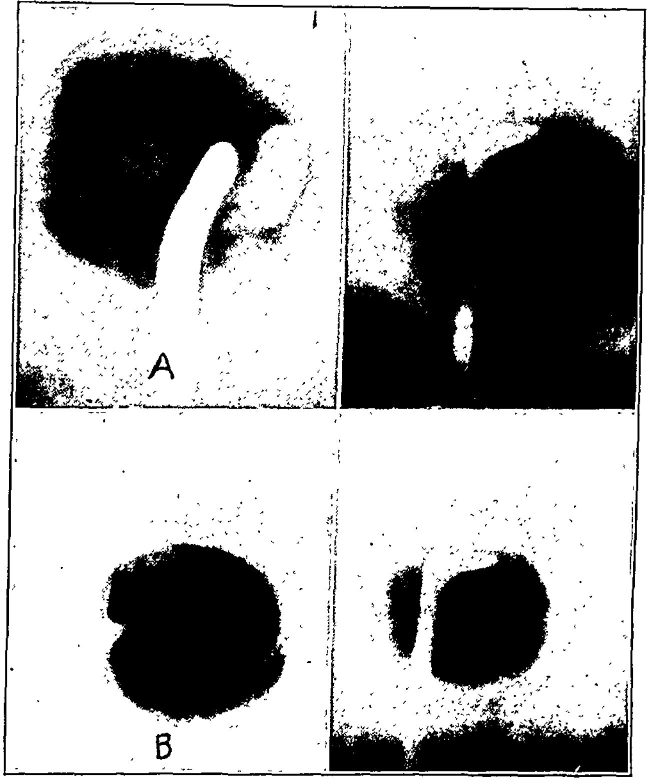

Fig. 3 (Case 3).—*A*, three calculi; *B*, lithotrite grasping stone; *C*, lithotrite grasping other stone; *D*, after crushing.

As the air distended bladder is well observed under the fluoroscope, it is always possible to see whether the beak is pulling the bladder mucosa, as there will be an irregularity of the air shadow produced. After the lithotrite is removed, the evacuating apparatus may be inserted at this sitting or another sitting; or, if preferred, the cystoscopic rongeur may be introduced to remove the larger crushed pieces and allow the patient to pass the small particles.

A catheter may or may not be inserted into the bladder. To avoid any unnecessary infection, it is advisable to inject about 2 ounces (60 c.c.) of some antiseptic solution into the bladder.

The patient is returned to bed and allowed to leave the hospital in from twenty-four to forty-eight hours.

ROENTGENOLOGIC TECHNIC AND EXPOSURE

The patient is placed on the horizontal fluoroscopic table, on which a rubber sheet has been placed. Any horizontal table will suffice for this purpose. The fluoroscopic box is controlled by a shutter which allows only the field under observation to be exposed and also acts as a protection for the patient. Either the self rectifying 30 milliampere fine focus tube or the regular fine focus tube may be used. Every precaution is taken both for the patient and for the operator in order to avoid any injury that may result from the effect of the rays, the operators using leaded rubber gloves and aprons of the same material. The table has an aluminum top which acts as a filter. Five milliamperes of current and 5 inch spark gap we find satisfactory.

The distance from the target to the tube in our case is 15 inches. We also use a filter. According to our arrangements, we are permitted to give the patient a total exposure of at least ten minutes. This time will have to be calculated according to the table used, as some distances increase more or less. The current is not allowed to pass continuously, only that degree of exposure being given for the operator to see the calculi, grasp and crush them, or to ascertain his bearings.

In our small series, no patient has had more than a total exposure of six minutes, with a minimum of four minutes.

ANESTHESIA EMPLOYED

It is advisable to use an anesthetic of some form, as the mucous membrane of the urethra and bladder in all these patients is very sensitive. If a local anesthetic is used, 3 ounces (90 c.c.) of a 5 per cent. procain solution should be injected into the anterior and posterior urethra, and also the bladder. A Dakin syringe is used for the injection in the urethra and through the catheter for the bladder. The solution is allowed to remain fifteen minutes before the lithotrite is introduced. With this, a fair anesthesia is produced, at least sufficient to keep the patient fairly quiet. The best anesthetic effect was obtained when spinal anesthesia was employed. For this we used morphin and scopolamin subcutaneously and apothesin intraspinally. Sacral anesthesia may be employed, but up to the present we have not used it in any of our stone cases. It is practically impossible to use nitrous oxid, owing to the inability to watch the patient in a darkened room. It is not advisable to employ ether anesthesia on account of the inflammable characteristics of ether, which would render it dangerous in the presence of the fluoroscope.

ADVANTAGES OF NEW METHOD

The advantages of the new method may be thus enumerated:

1. The operation is performed under the direct observation of the eye.
2. The time of operation is greatly reduced.
3. The possibilities for accidents are nil.
4. Stones of large size can be crushed.
5. No hemorrhages or trauma result.
6. It can be performed by any one using extreme gentleness.

THE CONTRAINDICATIONS FOR LITHOLAPAXY

Irrespective of the method employed, the contraindications remain the same, and are as follows:

1. For a calculus in a diverticulum, an open operation should be performed.
2. Again, for a calculus with an enlarged prostate, an open operation should be resorted to, the calculus being removed at the time of prostatectomy. If the patient should object to an open operation, or if it is questionable as to whether most of the disturbance is caused by the calculus or prostate, then the calculus should first be crushed.
3. A calculus in the presence of a urethral stricture should be treated after the stricture is dilated.
4. Should a calculus be so large as not to allow the blades of the lithotrite to be opened, then litholapaxy should not be resorted to. This can be determined best after an examination under the fluoroscope.
5. A calculus in the presence of a neoplasm should not be treated by litholapaxy.

REPORT OF CASES

CASE 1.—M. S., a man, aged 68, widower, merchant, seen Sept. 6, 1922, complained of frequency of urination. The family history was unimportant. He had had urinary disturbance for fifteen years. Two and a half years ago he had two calculi removed, each about the size of a large horsechestnut. These were removed at the time of a two stage prostatectomy. The prostate was removed *en masse*. The suprapubic wound closed nicely. The postoperative cystoscopic findings were negative. The patient developed hernia. Otherwise the course was normal.

About three weeks before admission, the patient began having difficulty on urination, together with frequency, tenesmus, some straining and passing of blood. There was retention on one occasion; there were no constitutional symptoms.

General examination was essentially negative except for the presence of infected urine and the postoperative hernia. Rectal examination was negative. Cystoscopic examination revealed 30 c.c. of residual urine; there was no intravesical bulging; the vesical orifice was normal. There were three calculi in the bladder, the sizes of which were approximately 4 by 3 cm., 4 by 3.1 cm. and 0.7 by 0.5 cm. Several small calculi were present. A roentgenogram demonstrated three calculi in the bladder.

September 12, with the technic described, the bladder was irrigated with potassium permanganate solution, 1:3,000, 350 c.c. of air being used. The calculi were crushed. When the last large fragments were crushed, the evacuator was applied, removing large quantities of crushed calculi and numerous larger pieces. The cystoscopic rongeur was introduced, and several pieces about 1.5 cm. in diameter were removed. As no anesthetic was given, it was decided to remove the remainder of the fragments at another sitting. The operating time was eighteen minutes. The exposure time was six minutes (Tables 1 and 2).

September 19, the patient brought several large pieces he had passed. With a cystoscopic rongeur, three large pieces were removed, each about 8 mm. in diameter.

September 26, with the evacuating apparatus, three pieces of calculi were removed, each about 3 mm. in diameter.

October 4, the patient reported that he had been passing the urine in a very good stream. With the cystoscopic rongeur, the last two pieces were removed.

October 27, cystoscopic examination revealed no calculi in the bladder. The patient voided urine in a good stream.

Jan. 7, 1923, cystoscopic examination revealed no calculi.

April 12, cystoscopic examination revealed no calculi. The patient was voiding in a good stream, and was discharged, cured.

CASE 2.—H. H., a man, aged 69 marr[illegible] tailor, seen April 3, 1923, was unable to uri[illegible] y[illegible] mily [illegible] tory was negative as to tuberc[illegible] ign

He had had the usual diseases of childhood but was never seriously ill. Suprapubic prostatectomy (one stage) had been performed five months ago, complicated by epididymitis. After operation, a suprapubic fistula remained open for six weeks.

The present illness dated back from the time he left the hospital, when he suffered with frequency of urination, tenesmus and straining. In spite of operation, his condition had not improved. He was not subjected to cystoscopy because of the epididymitis that developed. His general condition was run down. He had lost about 15 pounds (7 kg.) in weight.

Table 1.—*Review of Cases*

Case	1	2	3
Age	68	69	60
Roentgenogram	Positive	Positive	Positive
No. of calculi	Three	Two	Three
Size of calculi	4 by 3 cm., 4 by 3.1 cm., 0.7 by 0.5 cm.	2.5 by 2.5 cm., 3.2 by 2.1 cm.	4 by 3 cm., 3 by 2.5 cm., 4 by 2.5 cm.
Consistency	Phosphatic	Phosphatic calcium oxid	Phosphatic
Nucleus of calculi	Pus and débris	Fibers of gauze	Unknown
Previous calculi	Yes	No	Yes
Previous operations	Suprapubic lith. and prostatectomy	Suprapubic prostatectomy	None
Previous attempts at crushing	None	None	Seven times
Time of operation	18 minutes	15 minutes	15 minutes
Exposure time	6 minutes	4 minutes	4 minutes
No. times lithotrite used	Two	One	One
Anesthesia	None	5 per cent. procain	Spinal
No. of sittings	Four	Two	Two
No. of days spent in hospital	Four	Five	One
Medium used	Air	Air	Air

Abdominal examination revealed no palpable tumor mass; neither kidney was palpable; there were no areas of tenderness in the renal or ureteral regions. There was a scar in the suprapubic region from the old operation. There was no hernia. The urine was cloudy, owing to many pus cells, red blood cells, many staphylococci and colon bacilli; it was positive for albumin and negative for sugar. Examination of the external genitalia revealed no urethral discharge and no testicular involvement. The left epididymis was enlarged and indurated. Rectal examination revealed the sphincter of good tone; there were no hemorrhoids. There was no enlargement of the prostatic area. The rectum was free. There were no areas of induration or adhesions. Cystoscopy revealed 50 c.c. of residual urine. The bladder capacity was 150 c.c.; it was of good tone, with no intravesical bulging. The vesical orifice was in good condition. The trigon was covered by two smooth calculi, round in outline, each measuring approximately 3.1 by 2.5 cm. No diverticulum or bladder tumor was observed. A roentgenogram demonstrated the presence of these calculi.

April 26, by means of the same technic as described, 5 per cent. procain being used as an anesthetic, the calculi were crushed, the operating time being fifteen minutes, including the taking of some roentgenograms. The exposure time was four minutes. The bladder was irrigated with a large catheter, and some of the crushed particles were removed.

May 3, with a cystoscopic rongeur, all the calculi were removed, some of which were very large.

May 10, the patient voided in a good stream and felt good, but said that he had some dribbling at the end of urination.

May 11, dribbling was less than it had been.

May 24, he voided in a good stream. Only occasionally did he notice a few drops of urine at the end of urination.

May 29, cystoscopy revealed a good vesical orifice, and no calculi were present. The patient said he was not disturbed with dribbling, and he was discharged, cured.

Case 3.—S. H., a man, aged 60, married, merchant, seen April 17, 1923, complained of stones in the bladder. The family history was unimportant. The urinary disturbances were the only things of importance. There had been cutting pains in the penis for five years. Six months ago he visited a urologist, who examined him with a cystoscope and informed him that he had some large vesical calculi. Seven attempts were made at crushing with a lithotrite, only small fragments being removed. He had marked frequency, burning and tenesmus during the day, but not so much at night. There was some hematuria on straining. The patient stated that he was "torn to pieces" at the last attempt at crushing. There were no sexual or gastro-intestinal symptoms.

General abdominal examination was negative. The urine was cloudy, owing to many pus cells, many red blood cells, colon bacilli and staphylococci. Tests for albumin were positive; for sugar, negative. The external genitalia showed no pathologic changes. Rectal examination revealed no hemorrhoids. The sphincter was of good tone. The prostate was slightly enlarged, and of a soft, doughy and elastic consistency. There were no areas of stony hardness. The seminal vesicles were normal. Cystoscopy revealed 25 c.c. of residual urine, a bladder capacity of 150 c.c., and no intravesical bulging of the prostate excepting posteriorly, where there was a very small median lobe. Three large calculi were observed lying on the trigon; the sizes could not be determined. One was observed to have been chipped at a recent operation. A roentgenogram demonstrated three large calculi.

April 20, with the same technic, 5 per cent. procain being used, an attempt was made to pass the lithotrite; but, owing to the sensitiveness of the urethra, no crushing was attempted. A better anesthesia was necessary.

May 11, under spinal anesthesia, the three large calculi were crushed. The anesthesia was perfect. The evacuating apparatus was not used, as we were desirous of getting the patient to bed. The operating time was fifteen minutes; exposure, four minutes, as shown in the tables.

May 25, under gas anesthesia, all the calculi were removed with the cystoscopic rongeur.

June 1, the patient voided in a good stream. Cystoscopic examination revealed no residual urine; no calculi were present in the bladder. The patient was discharged cured.

Table 2.—*Details and Results*

Case	1	2	3
Evacuator	Used	Not used	Not used
Rongeur	Used	Used	Used
No. of large pieces removed	Fourteen	Ten	Twelve
Size of largest piece	1.6 by 1.2 cm.	1.5 by 1.1 cm.	1.8 by 1 cm.
Weight of pieces removed	430 grains	310 grains	550 grains
Amount of air	350 c.c.	150 c.c.	100 c.c.
Catheter drainage	None	For two days	None
Hemorrhage	None	None	None
Accidents	None	None	None
Incontinence	None	Temporary terminal dribbling	None
Urine	Many pus cells, few red blood cells, colon bacilli and staphylococci	Few pus cells, few red blood cells and staphylococci	Many pus cells, few red blood cells, colon bacilli and staphylococci
Residual urine before operation	30 c.c.	50 c.c.	25 c.c.
Residual urine after operation	None	None	None
Complications	None	None	None
P. O. Cyst	Bladder normal except for few cellules	Normal	Very small median lobe of prostate
Mortality	0	0	0
Results	Cured	Cured	Cured

RESULTS

A study of the accompanying tables reveals the various important data that would concern a new operation of this type.

Our results up to the present have been perfect, but owing to the small series of cases (three) that we have had, we would not be justified in saying that it is infallible.

An interesting feature in our results is demonstrated in Case 3. It appears that, since in seven attempts at litholapaxy a capable urologist was unsuccessful, our method must be superior since it effected a perfect result. In our small series we can report no accidents or complications, no mortality, and 100 per cent. cures.

COMMENT

In our series of cases we did not confine ourselves, strictly speaking, to litholapaxy, but deviated slightly and practiced lithotrity in two of them. The purpose was to try both methods. In our future work we intend to practice litholapaxy by employing the evacuator and the rongeur for the removal of crushed fragments at one sitting. With the rongeur, larger pieces can be removed. This, we observed, can readily be accomplished, as the actual time for crushing the stones in each case was between four and six minutes, including the taking of plates and demonstrations. Two patients had three and one patient had two calculi varying in size from 7 by 5 mm. to 4 by 3.1 cm. (Table 1).

To avoid any roentgen-ray burns, we advise that the maximum amount of actual exposure to the rays should not be over ten minutes at one sitting. If any difficulty should arise in crushing all the stones in that time (and it should not), it would be advisable to have the patient return for another sitting.

The rapidity with which the actual crushing of the stones can be performed gives one the assurance that no fear of a roentgen-ray burn need present itself. We advise an intermittent exposure. The duration of the operation may be extended at will, but the actual crushing of stones should be performed as speedily as possible. In order that the eyes should accommodate themselves to darkness, it is well to wear colored glasses or remain in a dark room for at least five minutes.

Various mediums for contrast shadows in the bladder have been tried. In our experience, air has proved the best. The air is not completely expelled from the bladder before from thirty to forty-five minutes. All the patients were over 60 years of age. This, together with the fact that two of them had previous suprapubic prostatectomies, made us feel that they were not the best subjects for another open operation. Case 3 certainly demonstrated to us that the operation is ideal, in that a blind litholapaxy was attempted on seven different occasions.

While spinal anesthesia gave us the best results, we have carried out the same procedure experimentally in cases without calculi, employing Scholl's method of sacral anesthesia. We find that it is very satisfactory, provided no attempt is made to distend the bladder too quickly. We feel that sacral anesthesia should be the method of choice.

Should the crushed fragments obstruct the manipulations of the lithotrite in a case of more than one calculus, then the fragments can be removed. To do this a reinsertion of the lithotrite is necessary. In our cases, all the crushing was done without reinserting the lithotrite at one sitting.

The actual number of days spent in the hospital is far below the number with the open operation for stone (Table 1). The impunity with which this operation can be performed in regard to accidents and complications (Table 2), and the rapidity with which it can be done, should place litholapaxy on a higher and safer plane as an operation than it ever has been.

The excellent contrast shadows produced by the air and the calculus under the direct observation of the eye make it possible for the operation to be performed by a novice.

With the new procedure, the former fears and some of the disadvantages of performing lithotrity or litholapaxy should be dispelled, as at present it meets all the requirements of a perfect operation. The presence of a large external meatus, together with a good anesthetic, assists in giving perfect results.

CONCLUSIONS

1. Litholapaxy or lithotrity, combined with fluoroscopy of the bladder in an air medium, is an ideal operation for vesical calculi.
2. Litholapaxy with the technic advised should be the operation of choice in uncomplicated cases of vesical calculi.
3. The operation is always under the control of the eye, making it a rapid and safe procedure.
4. Accidents and burns are negligible.
5. The operation can be performed by a novice.

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ABSTRACT OF DISCUSSION

DR. WILLIAM F. BRAASCH, Rochester, Minn.: Any attempt made to simplify or make more safe the procedures of litholapaxy and lithotomy should be commended. I have never tried the method Dr. Goldstein has recommended and am not in a position to discuss the procedure he has used. I would say, however, that if it makes it so easy that a novice could use it, it lays the method open to criticism. I wonder whether litholapaxy in any form ever should be used by a novice? It undoubtedly has its dangers, and the paper that Dr. Crenshaw recently wrote brings out very well the possible complications of the procedure. The majority of the stones that should be crushed can be felt and grasped by the sense of touch, and, as a rule, any one with experience should not have a great deal of difficulty. The smaller stones are sometimes difficult to get hold of, and it is possible that the coincident fluoroscopy might then be of value. The small lithotrite is frequently much better than the standard size in crushing the small stones. Of the several instruments that can be employed to crush small stones under inspection, the cystoscopic rongeur, as suggested by Young, is probably the most serviceable. Young has for years attempted to bring out an instrument that would permit of both inspection and litholapaxy, but so far has not been successful, according to his own statement. The suggestion of Dr. Goldstein appeals to me as one of considerable value and I think it well worthy of trial, although I dare say it would be confined largely to the small fragments that cannot be picked up by the ordinary lithotrite, and secondly to the deformed bladder, in which the anatomic landmarks are lost. As to the use of air in the bladder, I wonder whether any one has had any unfortunate experiences with this method? I remember that many years ago I used air in the distention of the bladder in connection with cystoscopy, and in several cases it was followed by alarming emphysema of the tissues of the entire abdomen and lower extremities. It is possible that this was the result of bad technic, but since then we have kept away from air in the bladder. It is quite easy for emphysema to take place in the tissues as the result of instrumental trauma. Furthermore, air inflation may be very painful unless one is very careful.

DR. B. A. THOMAS, Philadelphia: I wish to emphasize particularly the point that we should exercise a great deal of discretion in these cases. I take it that Dr. Goldstein recommends this as a routine, ideal procedure in almost all cases of stone in the bladder. I feel that there are many cases in which we should discriminate very carefully with regard to endoscopic removal of the stone or resort to cystotomy, preferably suprapubic, for removal of the calculi. Particularly in the cases of badly infected bladder, or when there is hypertrophy with diminished capacity, do I feel that the danger of litholapaxy is far greater than definite surgical procedures, such as cystotomy, for removal of the calculus; and yet I can see where there are certain selected cases in which, as the result of operation, prostatectomy or what not, or when the patients are in bad organic condition, the minority of cases, this procedure should receive very careful consideration.

DR. JOSEPH W[illegible], T[illegible]
Dr. Goldstein mention [illegible]

to distend the bladder and use the endoscope, and within a few minutes the patient died. The necropsy showed no lesions in the bladder or intestine, but a ruptured kidney pelvis. The entire blood system was filled with air, as well as the lungs and other tissues.

Dr. Victor Vecki, San Francisco: From a historical standpoint it may be interesting to note that the first endoscope ever used was devised by a Hungarian in Budapest, Professor Antal. I was at his clinic in 1888 and have seen beautiful pictures, the structures showing very clearly, more so than we see them now. At the time of my last visit, one of the patients collapsed and it took hours to get him back to life at all. In the afternoon he was dead. The necropsy revealed no reason for death. That was the end of Antal's aero-endoscope. I think it really broke the poor professor's heart, for he died shortly afterward. About twelve years ago an aerocystoscope was made by the Wapplers, and I have used that for several years. Though I never saw any mishaps, I still was a little bit afraid and very careful because I saw that one man die at Budapest.

Dr. Joseph L. Boehm, New York: The method has its use in selected cases. I should like to ask Dr. Goldstein his opinion in regard to calcium oxalate and jackstone calculi. We know that these stones are very hard. I have seen some that the strongest hands could not crush with the strongest lithotrite. On the other hand, we see the so-called encysted stones, and I should like to know his attitude in regard to these two conditions. As far as the question of air is concerned, I wish to say that in 1900 we did considerable experimental work in St. Louis in the pioneer days of the air cystoscope. We injected air up into both ureters and into the veins in animal research work. The so-called air embolus never bothered us. I have seen emphysema of the tissues, such as Dr. Braasch reported, and these cases are alarming; but I have never seen a fatality from such a condition. Per se, with air injected directly into both ureters under some force, we never had a fatality.

Dr. R. E. Fox, San Francisco: My experience has been quite limited, but in my opinion this procedure will become a very important factor in the removal of these conditions. Those of us who are afraid of air might use some other means; but in uncomplicated cases of large stones I do not think we would be justified in subjecting a patient to a procedure that keeps him in the hospital for two weeks or longer when we can return the man to work within a week by using other methods. Of course, I am talking from the army standpoint.

Dr. Herman L. Kretschmer, Chicago: Dr. Goldstein is to be complimented on working out this new technic for stones in the bladder. The question of treating bladder stones by litholapaxy is something that has not received the widespread attention it should. It was Bigelow of Boston who first conceived the idea of crushing the stone and evacuating the fragments all in one sitting. It remained for foreigners, principally men in the Indian medical service, to report large series; and in this country the only large series in recent years has come from the Mayo Clinic. I believe that uncomplicated cases and the ones Dr. Goldstein presented following prostatectomy can be handled as they have in the past. I do not believe that men who are familiar with bladder instruments will have much trouble in grasping the stones and fragments. I think that if these cases are handled as they were formerly, by the sense of touch, they can be removed in this way, and that means a simplified litholapaxy technic. There may be a certain number of cases in which it is necessary to use the roentgen ray combined with litholapaxy; but this at once complicates the technic. I do not think that we should go away with the idea that all stones that have to be treated with litholapaxy will have to be treated with the combination of roentgen ray and litholapaxy.

Dr. C. E. Burford, St. Louis: There are two reasons why I do not use litholapaxy, and I have not used Dr. Goldstein's method. In some cases a very severe reaction follows the crushing of the stone, out of all proportion to the magnitude of the operation, and for that reason I have done the suprapubic operation. In the second place, I have found in nearly all cases that have existed for some time a contracted vesical neck, and in some cases I have found it so very hard that I have been unable to dilate it and have had to take out a section of this ring, which was so contracted. In the vast majority of cases of stone in the bladder it is better to do a suprapubic operation so that we can deal with this contracted vesical neck, which seems to complicate the thing so greatly. I should like to know how much experience the doctor has had with the air distention.

Dr. E. G. McConnell, San Francisco: I have had some experience in this kind of work, and think that the doctor is right in stressing the sense of touch more than any other feature. I have known good clinicians who have entered the bladder with the lithotrite and have been unable to pick up the stone. I have known cases in which the stone has been crushed and they have not been able to pick up the fragments. That is all due to the sense of touch. There is no question that the method of Dr. Goldstein will aid in removing the small pieces. The ammonium phosphate stones are very easily removed; but to put the lithotrite in the hands of the novice I think is a grave mistake. There are liable to be grave consequences even when it is used under the eye of the operator. I have operated in at least 300 cases, and have used local anesthesia at all times.

Dr. John C. Spencer, San Francisco: Referring to Dr. Goldstein's paper, I am reminded of an elderly patient with an immense overdistention of the urinary bladder. In attempting to relieve the retention, I passed a gum elastic instrument without discovering that there were calculi in the bladder. In attempting to palpate the bladder by rectum there was nothing evident but enlargement with exquisite tenderness. As there was so much distention I determined to do a two stage operation for removing the prostatic enlargement. On opening above the pubes and reaching down to the bladder neck, I came in contact with three calculi that were obstructing the neck of the bladder, and removed them. In that case Dr. Goldstein's method would have been useless, for the stones were too low and could not have been grasped by the lithotrite. This is one of the difficulties that one may encounter in the method reported by Dr. Goldstein.

Dr. Henry G. Bugbee, New York: Several good points have been brought out in the discussion; namely, that the lithotrite should be used only by the trained operator. It is not an operation to be entered into lightly, and if one possesses the skill he should have before attempting this work he should be able, in the majority of cases, to perform the operation as it has been performed in the past. In some cases the procedure of Dr. Goldstein will be of value. In cases of smooth, hard stone, difficult to grasp in the lithotrite, this method would be of value, and in certain other cases, an oxalate stone for instance; but in the vast majority of cases I believe the older methods are still applicable.

Dr. Albert E. Goldstein, Baltimore: Some very timely suggestions have been brought out, and the criticisms were well taken. The work is at the present time in its infancy, but it is our purpose in the future to work on a larger series of cases, and at that time I shall be able to discuss it more fully. As to the air injection, we have likewise injected air into the ureters and kidney pelvis on numerous occasions in connection with pyelography, and up to the present time we have never had bad results. I have also injected air into the bladder and as yet have never had any trouble. Whether we shall have trouble cannot be said; but I think that the principal thing is not to produce trauma. Certainly, if we produce trauma we can get emphysema and extravasation. In traumatic cases air is very bad, but in this work the air is introduced through an ordinary soft rubber catheter, and in that way one should not produce any trauma. It is very important to remember that no water or air should be injected into a bladder or kidney without knowing the capacity of these organs. Knowing the capacity, we shall never overdistend the bladder. We have had cases of contracted bladder, but by knowing the capacity we have never overdistended it. In the cases of very hard stones and in some other contraindicated conditions that are mentioned in the paper, the stones cannot be crushed and we are compelled to do a suprapubic operation. In 1912, Cabot reviewed the literature and declared that in the hands of the novice a litholapaxy is safer than a lithotomy. The reports were extensive, and he had some good results in his work. I was glad to hear Dr. Boehm say that he never had any severe reaction with air. I agree thoroughly with Dr. McConnell that many experienced men have not been able to grasp a stone with a lithotrite. The third case I showed was one in which a noted urologist of our city had made seven attempts at litholapaxy, each time chipping off a piece of the stone, and then advised the patient to have an open operation. The man came to me for that purpose, but I persuaded him to let me try this method. We crushed all the stones at the first sitting and removed them. The patient has been examined by cystoscopy three times since then, and is well today.

RESTRICTION OF RATE OF FLOW AND INTERCHANGE IN THE CAPILLARIES

ADMINISTRATION OF VASOCONSTRICTOR DRUGS TO PREVENT ABSORPTION OF INJURIOUS SUBSTANCES, ESPECIALLY IN SUPERFICIAL BURNS, AND IN TRAUMATIZED AND INFECTED TISSUES *

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On Nov. 19, 1920, I began, with the following experiments, to study the restriction of the rate of flow and interchange in the capillaries by local and combined administration of vasoconstrictor drugs, as a means to prevent absorption of injurious substances, especially those encountered in superficial burns and in traumatized and infected tissues:

Experiment 1.—In a white rabbit, not used for experiment before, whose general condition was good, under short ether anesthesia the left ear was denuded of epithelium by rubbing with the edge of a razor blade over a measured area of 3 sq. cm. The wound was not deep enough to cause bleeding. A saturated solution of 1/10 grain strychnin sulphate was then rubbed into the wound for four minutes with the gloved finger. Four minutes from the beginning of the application of the strychnin, the animal became extremely irritable, and the slightest jar of the table produced violent convulsive movements of the extremities, which effect continued over a period of fifteen minutes, with the final production of opisthotonos, followed by return to a normal condition in a period of one hour.

Experiment 2.—In a brown rabbit, not used for experiment before, whose weight was the same as that of Rabbit 1, and whose general condition was good, in an exactly similar manner, under ether anesthesia, an area of the same size was denuded of epithelium to the same depth by abrasion of the left ear. Epinephrin chlorid, 10 minims of a 1 : 1,000 solution in 1 fluidram of procain, 1 : 100, was then applied to the wound for three minutes' time before washing it off. This produced marked blanching. Then an exactly similar saturated solution of strychnin, 1/10 grain, was applied in a like manner for four minutes by rubbing. In a period of fifteen minutes no symptoms that could be attributed to strychnin were elicited. For an hour the animal was quiet and not spastic in the least.

From a result so striking I seemed amply justified in concluding that (1) epinephrin chlorid and procain, when applied locally in very dilute concentration, will produce a circulatory block so complete as to prevent the absorption of a toxic dose of a drug in saturated solution, and (2) the blocking of the small vessels is maintained even in the presence of a strong drug and in spite of brisk rubbing with wet powder.

Many other quantitative experiments, all of them variations of the original, but with procain omitted in some, have confirmed these convictions and have added further interesting data. These will be reported soon in full detail.

The chief purpose in developing a treatment based on these principles is to attack conditions such as local inflammatory processes, due to traumas or infections of the external or internal body surfaces and cavities. Superficial burns quickly exposing large areas to the action of an injurious substance perhaps constitute the most urgent indication for local vascular constriction. But traumatized tissues, infected wounds, erysipelas, pleural empyema and cystitis also offer a broad field for its employment.

In treating such conditions in the future, I believe that more emphasis should be placed on the early production of a nonreceptive, nonexchanging surface, with vessels, by means of suitable drug action, forced to supply only the normal needs of the tissues instead of being allowed, as usual, to respond to the abnormal demands of organisms that may or may not be overcome in the inflammatory reactions which follow. Once the integument or membranes of the body are passed, the small vessels constitute the most important highways for invasion by organisms and for absorption of injurious substances. No organisms can live and multiply unless a suitable medium is provided. Their growth will not be favored by surface conditions such as the ones described. The tissues will not suffer injury from the production of such conditions, provided details of technic are followed carefully. A germicide that prevents the spread of organisms and their products while it kills the former offers distinct advantages.

My study of burns during a period of years has led me to believe that they should be regarded as surgical emergencies of the first order. From the experimental results of Vogt,[1] confirmed by the more recent ones of Cevario[2] and others, I am convinced that the major constitutional symptoms of burns, including the ones causing death after the early traumatic shock period and before the period of infection, are due to material absorbed from the surface. Much light has been thrown on the exact nature of the substance producing these symptoms by my colleagues, Drs. Kenneth D. Blackfan and C. A. Mills.[3]

I believe that extremely early intervention by local vascular blocking before or during the early stages of inflammation is always desirable, and in extensive burns is indispensable from the standpoint of the patient's life. Under a binocular microscope let one but see the enormous capillary bed (under normal conditions potentially closed) that is opened up quickly by a first or second degree burn; let him then think of it in terms of absorption, as conveniently illustrated by the experiment with strychnin mentioned above. I do not feel that he will then fail to realize this necessity of early intervention. We must keep in mind always that, before any aid arrives, a burned patient has already

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[1] Vogt: Ztschr. f. exper. Path. u. Therap. **11**: 191, 1912.

[2] Cevario: Sulla Pathogenesi della Morte per Ustione Pathologica, 1921, p. 13.

[3] I am indebted to Drs. Kenneth D. Blackfan, George J. Heuer and C. A. Mills for checking the accuracy of my results. The parts of the work dealing with burns will be published later and simultaneously with the contributions of the two former men on the nature of the substance producing the symptoms in burns, an abstract [illegible] which a[illegible] in the Transactions of the American Society for Cli[illegible] 1923.

passed through a severe ordeal. In the hours that follow he can ill afford to be subjected to further injury. The traumatic and the so-called "toxic" periods must be separated for him. Absorption of injurious substances, no matter what their nature, must be delayed, and, if possible, the cause eradicated later on. Though perhaps a less spectacular procedure, it is just as important to prevent a patient from being fatally poisoned through a large capillary bed as it is to prevent his bleeding to death by the application of a tourniquet. Hence my seemingly radical belief, which clinical results already seem to justify.

I first considered employing light local pressure, interrupted by periods of relaxation, as a means of exerting a "tourniquet" action on the capillaries, but the technical difficulties of applying inflatable rubber jackets or of immersing insulated patients in heavy solutions have made other methods appear more valuable clinically.

The results of my first experiment have stimulated me to investigate the fundamental factors involved both from a laboratory and from a clinical standpoint. In a series of gross and microscopic studies, I have recorded the actions of epinephrin, pituitary extract and ergot on the capillary circulation of rabbits, dogs and human subjects. In rabbits I have employed the ear vessels, in dogs the abdomen and thigh, and in human beings the nail base, the back of the hand and other locations presented by clinical wounds. In the microscopic human studies I have made use of a modification of the original method of Lombard,[4] and have avoided errors in observation as suggested by Krogh.[5] Both the local and the central method of administration have been of interest. Ointments and solutions have been tested on epithelialized and unepithelialized surfaces. The solutions have been combined in various ways with antiseptics, such as surgical solution of chlorinated soda. Quantitative factors have seemed especially important, so in all observations I have noted the force and duration of the pressor action for various drugs constantly and intermittently applied. Also I have determined absorption rates for large experimental and clinical wounds under such influences, the latter wounds including simple traumatized tissues, as well as superficial burns and infections.

At present, although tentatively following a routine in the wards, I do not feel at liberty to recommend any specific outlines of treatment until they have been given a safe and rational grounding by experiment. I am undertaking a study of the carbohydrate metabolism under the local, and the combined local and central administration of the drugs under consideration. Dr. C. A. Mills has kindly suggested a method for this. The effect on patients with hyperthyroidism must be studied; also the local effect of hypervascularization that may follow the prolonged and constant use of solutions that are too concentrated, followed by their sudden withdrawal. It is not within the scope of a preliminary report such as this to give a detailed description of these studies. Necessarily, though most of them are completed, the results must be published under separate headings. Further clinical and experimental data may alter our ideas with respect to details. However, even now, I am of the opinion that the following conclusions are borne out by the results obtained.

CONCLUSIONS

1. Prompt and lasting restriction of the rate of flow and of exchange in capillaries may be produced over large surfaces devoid of epithelium by constant or intermittent local application of vasoconstricting drugs.

2. The capillary and arteriovenular beds may be reached through unbroken skin by appropriate local diffusion methods without subcutaneous injections.

3. The vessels underlying a superficial burn of the human skin respond readily to pressor drugs after such procedures, the pressor action being distinctly stronger than the dilator forces at work.

4. Experimental and clinical results indicate that epinephrin locally applied will largely, if not completely, prevent its own absorption through direct action on the first vessels not severely injured.

5. Procain, because of its synergy with epinephrin, seems to make this gross effect more complete and lasting.

6. Epinephrin locally seems nonirritating, even when applied for long periods of time to wound surfaces, but, when procain is used with it, analgesia may effectively and safely be obtained should this not prove true in every case. Analgesia thus obtained is useful for preventing pain in surgical dressings.

7. Restriction of the rate of exchange and flow in the capillaries by the means outlined prevents the local absorption of drugs or of other harmful agents into the general circulation until such time as they may be dealt with conveniently at the site of their formation. Absorption through the lymphatics and by tissue diffusion seems negligible.

8. Such restriction allays the extensive pouring out of blood elements into the tissues and the attendant signs of inflammation.

9. No vasoconstriction is absolute. Under direct action of pressor drugs, the circulation in the various small vessels in the nail base and back of the hand will be abolished or much slowed, but these vessels may be seen to open up once in a while (presumably for oxygen and other metabolic requirements). Thus, while the blocking to substances outside is almost complete, the viability of the tissues is not endangered.

10. In any extensive superficial burn or inflammation, the chief purpose should be to prevent the absorption into the general circulation at any one time of a lethal dose of symptom-producing substance until its source may be removed or locally destroyed by any means practicable. With treatment based on the principles outlined, we hope to be able to accomplish this in a large majority of cases.

Burns Kill More Women than Men.—There is only one kind of accident—burns—which causes more deaths of females than males. Statistics covering a long period of years show that three out of five deaths from this cause are of women and girls. It is estimated that in 1922 there were not far from 6,300 deaths from this cause in the United States. About 45 per cent. of the deaths from burns occur from birth through the fifth year. . . . During the first three years of life more boys than girls die of burns. With the fourth year the scale turns sharply. Figures for the United States registration area covering a period of twenty-one years show, without a single exception, that in the fourth year of life the relatively high death rate among females begins. The margin increases from five to nine years where more than twice as many girls as boys die of this cause, and there is a more or less pronounced excess in the death rate for females until age 35 is reached. . . . These figures strongly suggest that dress is an important factor.—*Statistical Bulletin*, Metropolitan Life Insurance Company, October, 1923.

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[4] Lombard, W. P.: Am. J. Physiol. **29**: 335, 1912.

[5] Krogh, A.: Silliman Lectures: Anatomy and Physiology of Capillaries, New Haven, Yale University Press, 1922.

THE RELATION OF SPECIFIC GRAVITY TO GLYCOSURIA IN DIABETIC AND NONDIABETIC CASES

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This study was suggested by the realization that too frequently in a case of suspected diabetes the general practitioner gives a negative opinion based solely on the fact that a rapid routine examination of the urine has shown a specific gravity below 1.030. Taking it for granted that if the urine contains sugar the specific gravity must be above that figure, he does not consider it necessary to make a urinary sugar test.

Laboratory experience has shown, however, that sugar can be present in urine of a low specific gravity; but whether this was a rare or a frequent occurrence I did not know, and for that reason the investigation reported here was undertaken. In 1,000 cases of glycosuria, the specific gravity was compared with the urine sugar content, the cases being classified according to the specific gravity (Table 1). Chart 1 shows that as one would expect, the percentage of incidence of glycosuria bears a direct relation to the specific gravity. But the interesting and significant point shown is the high incidence of glycosuria with a low specific gravity.

Table 1.—*Relation of Glycosuria to Specific Gravity Level of Urine: An Analysis of One Thousand Urine Examinations*

Specific gravity....	1.000 1.005	1.006 1.010	1.011 1.015	1.016 1.020	1.021 1.025	1.026 1.030*	Total No. of Cases
Positive...........	79	71	58	68	79	171	526
Per cent.	7.9	7.1	5.8	6.8	7.9	17.1	
Negative..........	216	84	43	61	33	37	474
Per cent.	21.6	8.4	4.3	6.1	3.3	3.7	
Total..............	295	155	101	129	112	208	
Positive per cent...	27	46	58	52	70	85	
Negative per cent..	73	54	42	48	30	15	

* 1.030 or above (+).

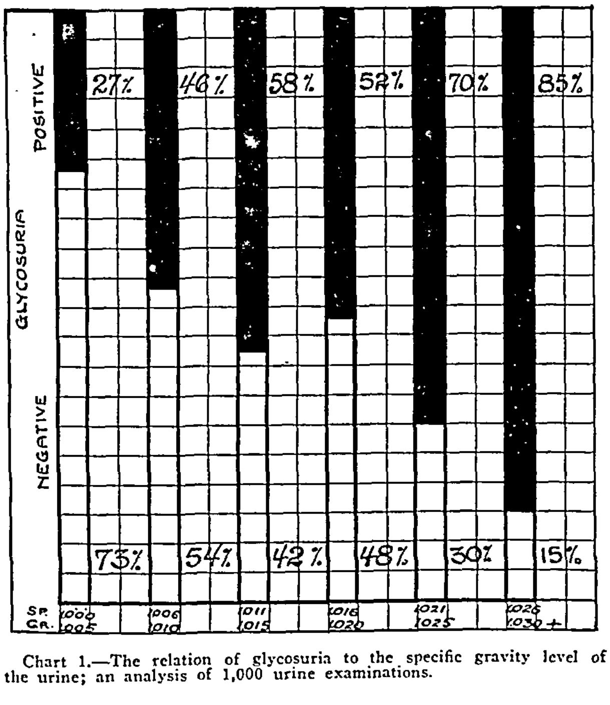

Chart 1.—The relation of glycosuria to the specific gravity level of the urine; an analysis of 1,000 urine examinations.

The cases analyzed in Chart 1 included both diabetic and nondiabetic cases. Chart 2 shows the relationship of glycosuria to nonglycosuria in the urine of 147 diabetic patients in which the specific gravity was 1.010 or below. The relationship shown here is even more significant than that shown in Chart 1, for it demonstrates what a large percentage, 72.5, of cases of diabetes would have been missed if diagnosis had been based on the low specific gravity alone.

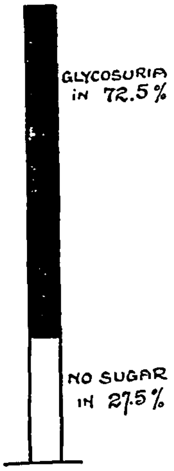

Chart 2. — The relation of glycosuria to a urinary specific gravity of 1.010 or less, based on a study of 147 cases of diabetes.

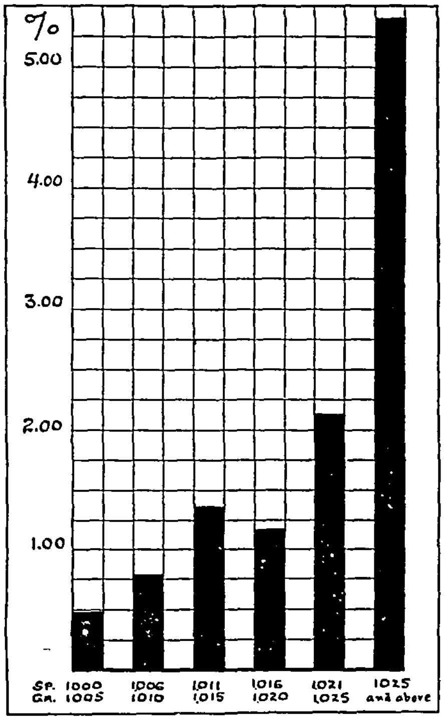

Chart 3.—The percentage of urinary sugar at different specific gravity levels; an analysis of 268 diabetic cases.

Table 2.—*Percentage of Urinary Sugar at Different Specific Gravity Levels: An Analysis of Two Hundred and Sixty-Eight Diabetic Cases*

Specific Gravity	Percentage of Sugar in the Urine	
	Average	
1.000 to 1.005	0.46	0.15, 0.08, 1.10, 0.42, 0.11, 0.63, 0.36, 0.01, 0.63, 0.42, 0.21, 0.48, 0.55, 1.30, 0.53, 0.53, 0.67, 0.14
1.006 to 1.010	0.78	0.16, 0.15, 0.11, 0.42, 0.77, 1.30, 0.53, 0.12, 1.50, 1.40, 1.10, 1.50, 1.00, 1.10, 1.70, 0.67, 0.91, 1.20, 1.10, 0.43, 0.43, 0.91, 0.11, 0.13, 0.25, 0.40, 0.63, 1.17, 2.10, 0.87, 0.63, 0.58, 0.58
1.011 to 1.015	1.34	0.33, 0.10, 0.38, 0.09, 1.80, 1.80, 1.20, 1.90, 2.10, 1.90, 0.83, 2.20, 1.10, 2.00, 1.90, 1.40, 1.10, 2.10, 2.50, 1.30, 1.80, 1.80, 0.71, 1.90, 1.90, 1.40, 0.34, 0.58, 0.53
1.016 to 1.020	1.19	0.29, 0.30, 0.31, 0.14, 0.91, 1.10, 1.70, 0.40, 1.20, 0.31, 1.10, 2.40, 0.48, 1.80, 0.91, 0.28, 2.40, 0.30, 0.10, 1.50, 1.80, 1.70, 1.90, 2.40, 2.00, 2.10, 2.10, 0.91, 0.83, 0.71, 0.10, 0.58, 4.35
1.021 to 1.025	2.11	0.40, 0.31, 0.70, 1.80, 0.53, 1.90, 1.20, 2.60, 3.30, 2.20, 0.45, 2.30, 0.38, 3.20, 3.60, 3.00, 2.60, 3.70, 0.68, 1.40, 1.60, 1.60, 3.10, 1.90, 1.20, 1.00, 1.70, 2.00, 2.30, 2.40, 3.00, 3.19, 3.60, 2.40, 3.70, 1.90, 2.50, 3.80, 3.20, 2.90, 4.30, 1.30, 1.40, 1.70
1.026 to 1.030 and above	5.37	0.63, 2.00, 2.00, 2.00, 1.20, 1.70, 3.00, 3.00, 0.38, 1.80, 2.30, 2.10, 2.60, 0.91, 2.20, 2.70, 3.40, 3.60, 3.00, 3.00, 1.90, 3.10, 2.80, 3.20, 3.30, 1.30, 1.50, 3.10, 0.36, 2.40, 2.40, 3.80, 2.80, 2.80, 4.00, 1.90, 2.20, 2.00, 2.20, 3.00, 5.00, 2.20, 1.50, 2.40, 2.40, 2.30, 3.40, 1.50, 1.90, 2.50, 2.10, 3.60, 2.20, 2.90, 4.00, 3.80, 3.10, 3.60, 4.00, 5.00, 1.28, 1.67, 0.83, 0.34, 0.14, 0.58, 0.53, 0.60, 1.50, 1.40, 1.30, 1.60, 4.16, 4.16, 1.30, 2.94, 7.69, 4.90, 2.10, 6.25, 7.35, 3.30, 2.50, 2.00, 2.00, 2.00, 0.88, 2.90, 0.97, 4.30, 4.30, 1.70, 0.20, 0.91, 1.00, 2.50, 0.14, 1.30, 1.30, 1.30, 2.00, 2.50, 2.50, 2.50, 2.50, 6.25, 7.13, 8.33, 5.55, 5.55

In order to find what is the average percentage of sugar at different specific gravity levels, I analyzed the records of the urine examination in 268 diabetic cases. The percentage of sugar in each case is given in Table 2, and the averages in each group are shown graphically in Chart 3. This study again emphasizes the importance of making as complete a study of urine of a low specific gravity as of urine of a high specific gravity. As this study demonstrates, by a negative diagnosis of diabetes based on a low specific gravity of the urine, at least half of the cases would be missed.

CONCLUSIONS

1. Specific gravity alone is not a criterion for or against the presence of sugar in the urine.
2. In many cases—both diabetic and nondiabetic—urine of a low specific gravity contains sugar; and the fact that urine has a high specific gravity does not necessarily indicate the presence of sugar.
3. The only criterion whereby the presence or absence of glycosuria can be determined is the urine sugar test.

MERCUROCHROME-220 SOLUBLE AS A VALUABLE ADJUVANT TO THE SILVER COMPOUNDS

IN THE TREATMENT OF GONORRHEA AND ITS COMPLICATIONS

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Any favorable opinion regarding drugs of doubtful value is necessarily received with skepticism and hesitancy. It is difficult to explain why different workers are at such variance in their results. Assuming that investigators voice honest experiences and conclusions, the varied results must be due to the preparation of the drug, to unknown chemical reactions, or to instability under ordinary atmospheric conditions which render the drug inert, or unfit for use.

With the foregoing problematic factors in mind, we endeavored to determine the clinical value of mercurochrome-220 soluble. So many diverse conclusions have been expressed concerning its value that no attempt has been made to review the conflicting literature. Our subjects include men and women, and for convenience are divided into three groups: (1) acute gonorrhea; (2) chronic gonorrhea with associated complications, and (3) acute exacerbations of old chronic gonorrhea.

During our experimental process, observations were made as follows: (1) Solutions of mercurochrome are very unstable and should not be used if they have stood longer than seventy-two hours; (2) tolerance of the gonococci occurs if the treatment is continuous; (3) solutions ranging from 0.25 to 1 per cent. are just as efficacious as stronger solutions when used in the urethra, and produce no distressing subjective symptoms, and (4) mercurochrome is not a substitute for silver compounds, but is most effective when used in conjunction with them.

TREATMENT

To our previous routine form of treatment for acute gonorrhea in men, which for convenience was divided into four periods, ranging from seven to ten days each, a freshly prepared mercurochrome solution was also used, which we now feel certain added to the potency of the silver compounds, and thereby shortened the course and lessened the complications in most instances.

Patients are given the customary advice with regard to rest, elimination, stimulants, excesses, food, and particularly the forcing of large quantities of water, which is perhaps the most important single factor in preventing the extension of the infection.

First Period (mercurochrome with protargin mild [argyrol]).—The patient is instructed to use, after urinating, an anterior urethral injection of 0.25 of 1 per cent. freshly prepared solution of mercurochrome, four or five times daily for three days, and then to alternate with a 5 per cent. solution of protargin mild (argyrol) for three days. At the end of the latter period, the use of mercurochrome is resumed. During this time, the patient receives office treatment daily, and a 1 per cent. solution of mercurochrome, or a 5 per cent. solution of protargin mild is injected into the anterior urethra, which is promptly followed by anterior and posterior urethral injection of 1 per cent. mercurochrome, or 5 per cent. protargin mild. The former is retained for ten minutes and the latter for from twenty to twenty-five minutes, by means of an ordinary rubber band placed around the glans between the corona and the meatus. The drug used in the office treatment is the opposite of that used by the patient.

Second Period (mercurochrome with protargin strong [protargol] and protargin mild).—The protargin mild injections are now replaced by 0.5 per cent. protargin strong solution, a 0.5 per cent. solution of mercurochrome being used for alternate periods of three days each. The daily office treatments of anterior and posterior injections of 1 per cent. mercurochrome and 5 per cent. protargin mild are continued.

At the end of the first period there is much less discharge, and the secretion is usually free from gonococci. With the changed treatment, however, an increase in the discharge is often noted in the second period, and often the organisms occur temporarily, the result of the stimulating and desquamative action of the protargin strong. Such increased discharge usually subsides by the end of the second period, but sometimes the treatment must be prolonged for a few days.

Third Period (stimulation).—At this time there are ordinarily no subjective symptoms, and slight, if any, objective. A small sound is passed for the purpose of making a background over which to express the urethral follicles, and to flatten out granulations. This is followed by the slow injection into the anterior and posterior urethra of a 1 per cent. silver nitrate solution, which is massaged lightly into the tissues. Repetition of this form of treatment depends on the recurrence or absence of symptoms. In the absence of symptoms, the treatment is repeated with sounds of increasing size, and on intermittent days by catheter (Diday method) irrigations of weak, warm potassium permanganate, to which a little weak silver nitrate solution is occasionally added. During this period, the prostatic secretions should be expressed for examination, as infection of the prostate follicles usually takes place, and massaging the prostate slightly at this time usually prevents future trouble in the gland.

Fourth Period (irrigations).—Resolution rapidly takes place at this stage, and the urine is carefully watched. If a few specks remain, an occasional sound, and possibly the injection of 1 per cent. silver nitrate may be necessary. Further light expression of the prostate

In cases treated by various local injections and internal medications, exacerbations are not uncommon. Such infections have become so attenuated that by using our routine treatment and shortening somewhat the intervals of applications, the infection promptly subsides.

SUMMARY

From the standpoint of shortening the course of the disease, preventing complications, and freeing the host from gonococci, the treatment as outlined has proved very satisfactory. It is not our purpose to advise mercurochrome as a panacea for all infections of the genitalia; nevertheless, our experience warrants the conclusion that, in the armamentarium of urinary antiseptics, mercurochrome, when properly used, is a valuable adjunct to the common-sense treatment of gonorrhea and its complications.

HYPERTENSION AND HYPERGLYCEMIA *

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The association of hypertension and hyperglycemia has attracted the attention of a number of clinical observers. In 1910, Neubauer[1] noted this and offered the unproved theory that excessive activity of the suprarenals was the underlying factor. In this country, O'Hare[2] first established the fact of a decline in tolerance for carbohydrate in certain examples of high blood pressure. He offered the theory that sclerosis of the arteries of the pancreas might be the pathologic background of the condition. Pearce and Keith[3] suggested that, because a diseased kidney is unable to utilize the ordinary amount of sugar brought to it by the blood, diminished sugar consumption results, with increased accumulation of this substance in the blood stream. Meyers and Killian[4] noted the increase of the diastatic activity of the blood in examples of nephritis, and expressed the idea that this might account for the hyperglycemia often noted in such cases. Härle,[5] in a study of a series of cases of hypertension, failed to discover any exact parallelism in the curves of blood pressure and blood sugar. He found that real hyperglycemia was rare in cases with definite kidney lesion and hypertension. However, in one fourth of the cases of hypertension without apparent kidney lesion, there was definite hyperglycemia. In another fourth, the blood sugar was at the upper limit of the normal. Härle concluded that hypertension and hyperglycemia are not the common result of increased activity of the chromaffin system. Botti[6] found that, in the presence of hypertension, blood sugar is increased and sugar tolerance lessened. He states that assimilation of carbohydrates may be impaired through delayed metabolism, lessened functional capacity of the liver, or disturbance of the general circulation. He could establish no relation between the degree of hypertension and the level of sugar in the blood. Janeway[7] noted a tendency to hypertension in elderly patients having diabetes with arteriosclerosis. Rosenbloom,[8] in a study of the blood pressure in diabetes, concluded that in the average case the blood pressure tends to be below normal. However, when arteriosclerosis or nephritis is present, the blood pressure is often elevated. Recently, Kylin[9] has described the association of lowered carbohydrate tolerance with hypertension. He makes further mention of the increase of uric acid in the blood in cases of this type, and states that cases characterized by hyperglycemia, hyperuricemia and hypertension belong in the group of essential hypertonias rather than in that of the diabetics.

PERSONAL OBSERVATION

Observation of the association of high blood pressure and increased concentration of glucose in the blood carried out during the last three years has led to the opinion that the majority of the cases belong in a quite definite group characterized by the four cardinal symptoms: hypertension, hyperglycemia, obesity and arteriosclerosis. While it does occur, it is rare that hyperglycemia is found in the thin person with hypertension.

Six typical examples of the symptom group set forth above are presented in the accompaning charts. These were ambulatory, office patients, who were observed over periods of from one to three years. The age of these patients was between 50 and 64. Three were men and three were women. All were overweight and exhibited symptoms of cardiovascular strain, varying from dyspnea on exertion to anginal attacks or circulatory stasis. All had for some time prior to this study taken a diet from which meat was largely or entirely excluded, and had, in consequence, eaten more than an ordinary amount of carbohydrate. In two cases, there was an increase in the uric acid of the blood. The chlorids of the blood exceeded 5 gm. per liter in only one instance. In no case was the urea nitrogen above 20 mg. in 100 c.c. of blood. Arteriosclerosis was demonstrable in the retina in four of the cases.

The clinical management of this group may be briefly summarized. The patients were allowed to go about their ordinary concerns with no restriction other than the avoidance of undue fatigue and effort, and, in addition, a modified diet. Such factors as physical rest, release from immediate pressure of the burdens of business or family, which make data on blood pressure obtained under institutional conditions so misleading, are, therefore, not to be taken into account here. The diet prescribed contained about 1,600 calories, thus distributed: protein, 85 gm.; carbohydrate, 125 gm.; fat, 80 gm. In most instances, so strict a diet with its relatively high protein was followed for periods of from five to ten days with intervals of from one to two days during which the patient "broke training." If satisfactory decline in weight did not result, on every fifth or seventh day a limited milk diet was enforced. As will be noted, all patients lost weight. In all, both the systolic and the diastolic blood pressure declined appreciably, and in general remained below the initial point so long as the regimen was carried out. With the decline in weight and in blood pressure, there was an expected improvement in the cardiovascular symptoms, with corresponding increase in comfort.

COMMENT

In our description of the hypertonias, we separate from among the examples of hypertension that are

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* Read before the Association of American Physicians at Atlantic City, N. J., May 2, 1923.

[1] Neubauer, E.: Biochem. Ztschr. **25**: 284, 1910.

[2] O'Hare, J. P.: Am. J. M. Sc. **159**: 369 (March) 1920.

[3] Pearce, G., and Keith, N. M.: Proc. Soc. Exper. Biol. & Med. **12**: 210, 1915.

[4] Meyers, V. C., and Killian, J. A.: J. Biol. Chem. **29**: 179 (March) 1917.

[5] Härle, F.: Hypertonia and Sugar Content of Blood, Ztschr. f. klin. Med. **92**: 124-133 (Nov.) 1921.

[6] Botti, A.: Policlinico, Rome **29**: 249 (Feb. 20) 1922; abstr. J. A. M. A. **78**: 1236 (April 22) 1922.

[7] Janeway, quoted by Rosenbloom (Footnote 8).

[8] Rosenbloom, J.: J. Lab. & Clin. Med. **7**: 392 (April) 1922.

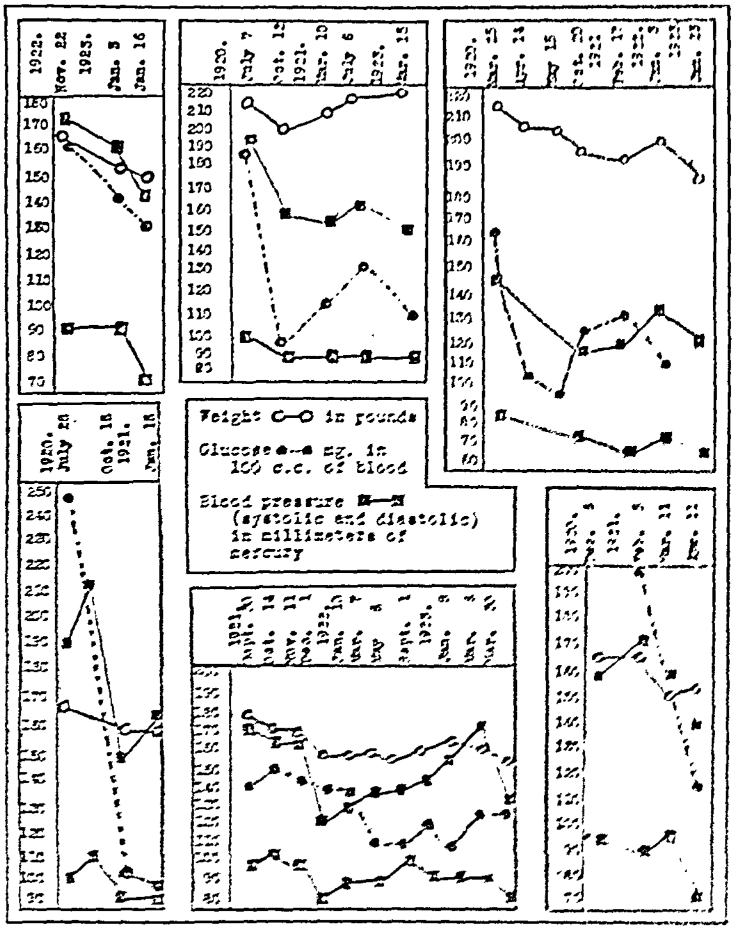
[9] Kylin, E.: Zentralbl. f. inn. Med. **44**: 81 (Feb. 10) 1923.

associated with other definite conditions, such as kidney insufficiency, aortic leakage, toxemias of pregnancy, thyroid disturbances and increased intracranial pressure, a group without other recognized clinical association, the group we call the essential hypertonias. As clinical study develops, these so-called essential hypertonias will doubtless be further subdivided for purposes of clinical description and management. I would suggest as a tentative subdivision the type of case described, that characterized by the symptom group hypertension, hyperglycemia, obesity and arteriosclerosis.

While such speculative conditions as excessive activity of the chromaffin system, or sclerosis of the arteries of the pancreas, may well be in the background, in not a few of these patients one can trace possible etiology of the hyperglycemia and associated conditions to faulty and ill balanced diet. It is still a matter of tradition and practice among not only the laity, but also perhaps a majority of the profession, to prohibit or limit the amount of protein food taken by the patient when hypertension is present. Since the amount of fat that one can comfortably take is limited, protein deprivation leads directly to an increase and excess in carbohydrate intake. So much has been said and so little proved in respect to the dangers of protein food that the possible dangers of overfeeding with carbohydrate have had scant consideration.

What are the consequences of an ill balanced diet with an excess of carbohydrate in a person in middle life with hypertension? If tolerance for carbohydrate is below the normal, there is certain overstrain of the pancreas and a tendency to the development of diabetes. There is also the almost certain result of increase in weight. In addition to these two results, which are scarcely debatable, there are two further possible consequences: one is an increasing tendency to arteriosclerosis; another, a rise in blood pressure. There is considerable ground for argument in favor of the view that arteriosclerosis and hyperglycemia are not mere casual associates. Even in juvenile diabetes, arterial thickening is extremely common. In the diabetes of later life, arteriosclerosis is constant. The happy effect of the control of hyperglycemia in cases exhibiting such arteriosclerotic complications of diabetes as gangrene and retinitis is scarcely disputed. However, I know of no experimental work on the relation of hyperglycemia and arteriosclerosis. Arguments favoring such a view are based solely on clinical observation. In the clinical type being considered—that characterized by hypertension, hyperglycemia, obesity and arteriosclerosis—the relation of hypertension to hyperglycemia is probably indirect. In this group, reduction of the blood sugar and its maintenance at or about normal is, in my experience, quite constantly followed by reduction in blood pressure. It is probable that this is not a direct cause and effect, but is a consequence of the reduction in bulk of body which quite constantly follows the dietary regulation of high blood sugar in the obese hypertonic patient. Rose and others have shown that decline in weight is almost always accompanied by decline in blood pressure, particularly when this has previously been high.[10]

The symptoms of cardiovascular strain that were universal in this group of obese patients having hypertonia with hyperglycemia were very favorably influenced by the decline in weight attending the decline in hyperglycemia. Effects of this kind are probably due to reduction in body bulk, reduction in volume of circulating fluid, reduction in total metabolism, and possibly, as will be discussed elsewhere,[11] to alteration in concentration or distribution of some of the crystalloids of the blood. It has been my experience that those exceptional persons who are not overweight, but who have nevertheless a hypertension and hyperglycemia, do not show reduction in blood pressure by a regimen that brings the blood sugar down to a normal level or keeps it there.



Relation of systolic and diastolic blood pressure, weight and blood sugar.

It would, therefore, seem that the observations of [illegible] are only partially correct, and that there is no exact parallelism between the curves of blood sugar and the curves of blood pressure. [illegible]

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[10] [illegible]

[11] [illegible]

In view of this apparent fact, the observation of the blood sugar in such cases might appear an unnecessary elaboration. The weight alone might seem an adequate guide in treatment. With this I do not agree. In patients of the type considered, resolution is often as flabby as tissue, and the physician needs every possible argument to enforce his decrees. The necessity of lightening the burden on the cardiovascular system can be stressed. If, in addition, the threat of diabetes can be held over the head of the patient, there is added argument for reduction in weight. The level of blood sugar is a useful guide in diet. Further, the reduction in weight of the obese person with hypertension plus hyperglycemia is a much simpler and easier matter than the reduction in weight of a similar type of patient with a normal or low blood sugar. With this more complete knowledge, the therapeutic problem can be approached with a vigorous certainty, which adds to the physician's influence. The immediate improvement in the general well-being of these patients, and the quick relief from the annoying symptoms of cardiovascular strain that follow the loss of a few pounds, are a convincing argument to the intelligent patient. If both physician and patient realize that not alone is obesity being fought, but diabetes and arteriosclerosis, with its consequences, both can realize that the attempt is more than worth while.

CONCLUSIONS

1. Hyperglycemia is present in a considerable number—from 10 to 30 per cent.—of examples of arterial hypertension.

2. It appears to be more common when high blood pressure is not associated with obvious disease of the kidney.

3. This association of hyperglycemia and hypertension is most common in those who are obese and inclined to show arteriosclerosis.

4. The cause of the hyperglycemia of hypertension is unknown. Plausible but unproved theories are: overactivity of the chromaffin system; sclerosis of the arteries of the pancreas, and increased diastatic activity of the blood. An undoubted cause in some cases is excessive use of carbohydrate food, the result of unwise restriction of protein.

5. Prolonged hyperglycemia may tend to cause arteriosclerosis and enhance blood pressure.

6. The reduction of blood sugar to a normal and its prolonged maintenance at a normal level in the type of cases considered is generally followed by significant fall in blood pressure.

7. This fall in blood pressure is probably due to the loss in weight which results from restricted diet.

8. Weight and blood sugar are valuable guides in the treatment of the obese person with hypertension.

9. In hypertensive cases in which the patient is overweight, carbohydrate is probably far more dangerous than protein. The latter should not be restricted unless incompetence of the kidney for the products of nitrogenous catabolism is demonstrated.

49 East Fifty-Third Street.

Common Colds.—Olitsky and McCartney, experimenting on rabbits with filtered nasopharyngeal washings from early cases of common colds, failed to discover any constant, pathogenic agent or incitant. They were unable also to find in any of their material the "globoid bodies" of Foster. Their experiments showed that the effects of infectious material derived from colds are distinct from those of epidemic influenza.

SELECTIVE COLLAPSE IN PULMONARY TUBERCULOSIS *

NATHAN BARLOW, M.D.

CHICAGO

Selective collapse is a term that the late Dr. Thompson and I first used to denote the behavior of involved parts of the lung under partial pneumothorax, spontaneous or artificial. Further study by physical signs, necropsy, and especially by stereoroentgenograms, showed the same behavior of inflamed or irritated regions of the lung in all cases of tuberculosis. It constitutes a general principle, the knowledge of which not only explains the action of partial pneumothorax, but is of value in the general treatment of tuberculosis.

The precise explanation has not been conclusively demonstrated. A few plausible theories are discussed in the article on selective collapse in our monograph.[1] Sewall [2] cites references to a discussion of the action of this principle in bronchial irritation and obstruction nearly a hundred years ago.

The principle of selective collapse is manifested in a series of phenomena that may be described thus: (*a*) If the lesion is not too severe, inflammation or irritation of the tissue in any region of the lung causes a tendency of the involved tissue to collapse; (*b*) a similar tendency to collapse is present in any anatomic division of a lung (lobe, primary lobule, secondary lobule), the bronchus supplying which is inflamed or irritated. This contraction behaves as if it were due to a partial loss of elasticity, which loss is, however, in one direction only, excepting in severe lesions. Contractility is slightly, if at all, diminished, while expansibility is markedly impaired. The contraction develops gradually, and in a few hours or days the tendency to contract is balanced by the increased tension of the adjacent healthy portion. This increased tension is distributed unequally throughout the lung, the greater part being borne by the adjacent lung tissue, because the lung is obliged to conform to the thoracic cavity, and cannot alter its form.

If, now, there occurs a reduction in the volume of the lung, as by a limitation of motion of the chest wall, or a higher position of the diaphragm or other cause, this further lessening of volume is not evenly distributed through a lung in which there are localized lesions. The principle of selective collapse comes at once into play, and the lesions again contract until a balance is reestablished with the reduced general tension. This balance is subject, as before, to the limitations imposed by the necessity for the lung to conform in shape to the thoracic cavity. Completely consolidated foci, of course, cannot contract, but the principle of selective collapse is manifested at the periphery of such lesions, where the lung tissue is involved but not consolidated. Massive lesions may, therefore, require very close study before the action of the principle is evident.

APPLICATIONS IN PARTIAL PNEUMOTHORAX

The induction of a small quantity of gas or air into a pleural cavity that is free from adhesions introduces an entirely new condition. Not only is the total volume of the lung, and consequently the tension, reduced, but also the lung is now free to assume any form whatever. The principle of selective collapse is now unhindered in its action, the pleura over the involved parts of the lung becomes retracted, and the gas collects over the most involved regions, as first described by Parry Morgan.[3] This localization of the gas (or air) is a result of the action of the principle of selective collapse. Some investigators have misunderstood what is meant by selective collapse, for example, in a recent article by Hennell and Stivelman.[4] This misapprehension of the definition is doubtless due to the use of the term "selective collapse" by Barlow and Kramer[5] in the title of an article describing its action in partial artificial pneumothorax, while the definition and explanation were given in a relatively short article in a large monograph.

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* From the U. S. Veterans' Bureau School of Tuberculosis.

[1] Barlow, Nathan, and Thompson, J. C.: Small Pneumothorax in Tuberculosis, *Bull.* 132, Hyg. Lab., U. S. P. H. S., 1922.

[2] Sewall, H.: Pulmonary Atelectasis, Am. Rev. Tuberc. 4:811 (Jan.) 1921

This localization of the air in the pleural space over the most involved part of the lung is a result of the selective collapse; possibly the best descriptive term so far introduced is "ideal localization," as proposed by Gwerder,[6] The collapse itself takes place in the lung tissue, and appears to select, first, the inflamed tissue in and around the lesions, and, secondly, lung tissue in the regions supplied by involved bronchi. In scattered deep-seated lesions, the lung may not be collapsed immediately beneath the retracted pleura, but only around each lesion, leaving expanded parts between the lesions. This selection of diseased areas explains how a relatively small amount of air may cause effective collapse of lesions scattered through an entire lobe. The results of selective collapse and its relationship to partial pneumothorax, both artificial and spontaneous, have been discussed in the articles already cited.

THE PROTECTIVE MECHANISM

There are certain peculiarities in the behavior of selective collapse that are of importance in the general management of cases of tuberculosis, and a knowledge and appreciation of this principle will help us in our treatment of patients. Bray[7] has called attention to "the practical value of a study of the mechanism of compensation." This mechanism serves not only for compensation in established conditions, but also for protection in progressive disease, and consists of two parts. The extrapulmonary protective mechanism includes the limitation of motion and retraction of the chest wall, the elevation of the diaphragm, the deviation of mediastinal structure, and the fatigue and other subjective symptoms that limit the exertion of the patient and consequently reduce his respiration. The intrapulmonary part of the mechanism includes selective collapse of the inflamed parts and the resulting increased expansion or even emphysema of neighboring uninvolved regions. The development and maintenance of effective selective collapse requires that the extrapulmonary mechanism be not disturbed during and for a time after the formation of the collapse, owing to the following peculiarities in its development:

1. Selective collapse requires from several hours to several days, usually from twenty-four to forty-eight hours, to develop to the point at which it is balanced by the increased local tension.

2. When recently formed, selective collapse is easily dissipated by forced breathing, severe or prolonged coughing, or by vibration, as in percussion.

3. After selective collapse has developed to the point of balance with the intrapulmonary tension, there will be a slow and gradual further development of collapse, provided the part is kept at nearly complete rest.

4. After selective collapse has endured for some time, it resists reexpansion, and tends to become permanent, as was shown first by Parry Morgan.[8] (This peculiarity depends in part on the formation of fibrous tissue, and explains the permanent good results after brief partial artificial pneumothorax, as used in Morgan's method.) On reexpansion, the adjacent parts become compensatory.

APPLICATION IN THE GENERAL TREATMENT

In the early stages of treatment, any exertion that causes rapid or deep breathing should be avoided; a walk to the bathroom once a day may, if it causes forced breathing, entirely prevent the development of efficient selective collapse.[9] With some patients much may be accomplished by an intelligent explanation of the fact that the effect of overexertion is not limited, even mechanically, to the duration of the increase in pulse and respiration, but that forceful breathing opens up the lesions so that there is more movement in them for several hours.

It is easy to understand[10] why better and more permanent healing is likely to be obtained if the patient is kept at absolute rest for at least six weeks, even though his pulse and temperature become normal. If the lesion is not stretched, the selective collapse will slowly increase for at least this time, and any movement should be avoided until there has been time for the collapse to become fixed. The more perfect the collapse in this early period, the more contracted will be the lesion when healed, and the less contracted the lung, as the fibrous tissue will be limited to a smaller area.

Frequent severe examinations, and all examinations by prolonged or hard coughing, prolonged or heavy percussion, and especially those requiring the patient to exhale all possible air before coughing, which is immediately followed by deep inspiration, are to be avoided, as they break up the selective collapse so completely that marked changes in the physical signs are sometimes noted, even on the following day.

Prolonged or severe cough must be checked. Ordinary cough does not seem to interfere with selective collapse; it may even favor it. The strain is on the extrinsic muscles of expiration, not on the lung tissue, and the sudden release of air permits a rapid contraction and consequent reduced tension of the lung tissue, which may permit a greater contraction of the lesion. In fact, the explanation of râles after cough may be that the suddenly reduced tension permits the momentary selective collapse of the involved areas to a degree that brings moist surfaces into contact. But when the cough is so prolonged or severe that it is followed by forced deep breathing, it results in loss of collapse.

In the active and progressive period, dyspnea after any exertion, even standing up, is a contraindication to that particular exertion, of even more importance than acceleration of pulse. Frequent repetition of an effort that causes labored breathing may entirely prevent the selective collapse of the lung.

Breathing exercises, wind instruments, loud singing, all of which require extreme expansion of the lungs, may break up a selective collapse, even when it is partly fixed by fibrosis.

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[3] Morgan, W. P.: Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis, Quart. J. Med. **11**: 1 (Oct.) 1917.

[4] Hennell, H., and Stivelman, B. P.: So-Called Selective Collapse in Artificial Pneumothorax, Am. Rev. Tuberc. **7**: 291, 1923.

[5] Barlow, Nathan, and Kramer, D.: Selective Collapse Under Partial Pneumothorax, Am. Rev. Tuberc. **6**: 75 (April) 1922.

[6] Gwerder: Entspannungspneumothorax, Beitr. z. Klin. d. Tuberk. **47**: 231, 1921; Low-Tension Pneumothorax, Tubercle **4**: 13 (Oct.) 1922.

[7] Bray, H. A.: The Mechanism of Compensation in Pulmonary Tuberculosis and Its Relation to Physical Signs, Am. Rev. Tuberc. **6**: 1013 (Jan.) 1923.

[8] Morgan, W. P.: On the Possibility of Achieving by Partial Pneumothorax the Advantages of Complete Pneumothorax, Lancet **2**: 18, 1913.

[9] Barlow and Thompson (Footnote 1). Sewall (Footnote 2).

[10] Morgan, W. P. (Footnote 3); Hennel, H., and Stivelman, B. P. (Footnote 4).

The use of the spirometer in any case in which recently active disease is suspected is unjustifiable, as it cannot fail to dissipate the collapse around the lesions.

A knowledge of this principle may aid us in determining indications for special treatments that alter the type of breathing, as those of Sewall and Swezey,[11] and Knopf.[12] If the disease is progressive on one side only, with a good development of the protective mechanism, limitation of motion, elevation of the diaphragm and well developed selective collapse, we should not experiment with anything which will change the type of breathing or interfere with the established defense, as we may break up a collapse around the lesions which it will take days or weeks to reestablish. But in bilateral lesions limited to the upper parts of both lungs, and in cases in which the mechanism is not established, such treatments may help to bring it about.

Experimental proof of some of these points is given in the articles cited by Sewall, and in Morgan's writings. Some of them are easily demonstrated during the alternate expansion and contraction in the pathologic technic followed in Dunham's clinic.[13] We have demonstrated all of them in various ways. If the reader desires to study any of them, serial stereoroentgenograms taken by a soft technic (spark not over 5 inches; not over 40 milliamperes; exposure short enough to carry the trunk markings well out toward the pleura) offer the easiest method. Overexposure or rays of great penetration blot out slight differences in density.

Only a few of the clinical applications of this principle have been mentioned. Others frequently present themselves in the treatment of patients. There are some who will say that these precepts in treatment are well known to them as a part of the accepted treatment of tuberculosis, and that it is unnecessary to invoke a new theory about "selective collapse" to teach them what they already know. It may be replied that conversation with some of those who stand highest in the treatment of tuberculosis in this country, and observation in some of the very best sanatoriums, have convinced me that, however well known and accepted these precepts may be in theory, in practice they receive but slight attention. The reason is obvious. It has been felt that the ill effects of such things as labored breathing and heavy percussion were limited to the duration of the disturbance and to the single extra amount of toxic products that might enter the circulation.

We should never forget that selective collapse is slowly formed but may be quickly destroyed, and that it must be left undisturbed at least for weeks before it can withstand any unusual increase of tension. The ill effect of a period of labored breathing does not end when the respiration becomes normal; it persists until selective collapse is reestablished. If the development of this collapse is prevented by daily exertion, even though brief, healing of the lesion may be indefinitely delayed. And if this collapse is periodically broken up before it becomes fixed, the final healing and fibrosis, instead of being firm and compact, may be diffuse, loose and consequently insecure.

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[11] Sewall, H., and Swezey, S.: The Effects of Limiting the Respiratory Excursions of the Upper Thorax in Refractory Cases of Pulmonary Tuberculosis, Am. Rev. Tuberc. 5: 547 (Sept.) 1921.

[12] Knopf, S. A.: Controlled and Diaphragmatic Respiration as an Adjuvant in the Rest Cure of Pulmonary Tuberculosis, Canadian J. Med. & Surg., November, 1922.

[13] Wooding, C. E.: Postmortem Procedure, Bull. 132, Hyg. Lab., U. S. P. H. S., 1922, p. 221.

AGGLUTINATION OF TYPHOID GROUP OF ORGANISMS IN CASES OF JAUNDICE AMONG VACCINATED PERSONS *

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In recent years an unusual number of cases of jaundice, sometimes in epidemics, have come under the care of American physicians, especially in the Northeastern states. The most recent report is that by Bloomer,[1] which expresses the current opinion that the disease is an infection due to some specific organism at present unknown. The same increase in cases of jaundice has been reflected in the army, without, however, the occurrence of any definite epidemics, so far as I know. Sporadic cases have occurred in a number of stations in the Second Corps Area, which includes New York, New Jersey and Delaware. In the course of an investigation of this disease, one positive finding has been made, which, it is thought, should be recorded.

A number of cases have shown, in the blood serum, a definite agglutination of paratyphoid B bacilli, with a less marked agglutination of typhoid and paratyphoid A bacilli. All these patients had been vaccinated with triple typhoid vaccine, but in most instances more than a year before the attack of jaundice; and agglutinins, after vaccination, as a rule do not persist over a year. The agglutinins in the patients also disappeared promptly after the attack. This finding may be of little significance as a nonspecific reaction, like the agglutination of *B. proteus* in typhus, but, on the other hand, it may point to some toxin of food poisoning that has stimulated a group response of agglutinins in vaccinated persons.

My attention was first definitely directed to this problem of jaundice by Major C. R. Bell, of Fort Slocum, New York, who treated several patients in 1922 and had an attack himself in August. Several of the patients were soldiers returning from Germany, some of whom became sick en route. It was decided to investigate the disease, and Colonel Keefer, the Corps Area surgeon, issued a circular emphasizing the occurrence of jaundice and requesting that a history and specimens of blood, urine and feces be sent to the laboratory for examination. In this way, twenty-two cases have been studied during the last year, most of them in stations near New York. One death occurred. Especial assistance in this work has been received from Majors Bell, Demmer, Herbert and Woodard and Captain Dodson of the Medical Corps of the Army. Most of our series would previously have been diagnosed as "catarrhal jaundice." Several, however, had a definite history of syphilis with the administration of arsphenamin, and were excluded from consideration.

Although no proved case of Weil's disease has yet occurred in the United States, it was thought best to look again for *Leptospira*, in view of the possibility of importation of the disease from Germany. A number of inoculations of guinea-pigs were made with blood, blood serum and urine from active cases, and with urine from convalescents. None of the animals showed any evidence of infection. Cultures made with Noguchi's lepto medium also remained sterile. Most conclusive of all, however, were the Pfeiffer reactions with the serum of convalescents, which were kindly made for us by Dr. Noguchi, and which were entirely negative. This evidence may, therefore, be added to the negative findings of Symmers,[2] Williams [3] and others to the effect that we are not dealing with Weil's disease.

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* From the Second Corps Area Laboratory, Army Building, 39 Whitehall Street, New York.

[1] Bloomer, George: Infectious Jaundice in the United States, abstr., J. A. M. A. 80: 1873 (June 23) 1923.

Attention was then directed to the possibility of an intestinal infection. Stools were plated for the typhoid group, and cultures were taken of the duodenal contents in several cases. None of the cultures revealed any significant organism. A fatal case occurred in a soldier at Fort Slocum. The liver presented a picture of acute yellow atrophy, with marked destruction of the central part of the liver lobules. There was no obstruction of the bile passages. No significant findings of a bacteriologic nature were made.

Agglutination tests of blood serum with suspensions of paratyphoid A and paratyphoid B bacilli were made in ten cases. In four they were entirely negative in dilutions of 1:40 to 1:320. In six, however, a definite agglutination occurred with paratyphoid B, typhoid and paratyphoid A bacilli in descending order. These serums were taken fairly early in the disease. When the test was repeated from a week to ten days later, the agglutinins had practically disappeared. It may be that in the negative cases the time element was a factor.

The case presented below is a typical one of the behavior of agglutinins.

REPORT OF CASE

N. J., a man, aged 32, a private, U. S. Army, with no history of typhoid, went to Camp Alexander Hamilton, Long Island, N. Y., from Fort Totten, N. Y., June 4, 1923, in good condition. In about a week he began to have indigestion, and pain in the abdomen. There was some vomiting and loss of appetite, but no fever. Jaundice appeared in two weeks. The feces and duodenal contents were negative for the typhoid group. Triple typhoid vaccination was completed in March, 1922.

Agglutination

Organisms, Serum	1-20	40	80	160	320
July 7, 1923, ten days after jaundice appeared:					
Typhoid	++	++	++	+	—
Paratyphoid A	++	++	+	—	—
Paratyphoid B	++	++	++	+	+
July 12, 1923, convalescing:					
Typhoid	+—	—	—	—	—
Paratyphoid A	+—	—	—	—	—
Paratyphoid B	+—	—	—	—	—

It will be seen that the serum of the patient, sixteen months after vaccination, agglutinated, in fairly high dilutions, the organisms of the typhoid group, and that the agglutinins disappeared quickly. Convalescent serum failed to agglutinate *B. aertrycke* (Mutton and Newport strains), *B. enteritidis* and *B. suipestifer*.

At one time a possible clue seemed to be found in Major Bell's information that a commercial culture of "Rattin" was being used at Fort Slocum to destroy rats. Some human infections have been reported from such products, especially in children.[4] No agglutination, however, was obtained with this culture by serums in four cases. The rat has also been suspected in connection with this form of jaundice as a carrier of *Leptospira*. It can apparently be excluded from connection with this disease on this count, but can still be a carrier of paratyphoid organisms.

COMMENT

It is, of course, possible that this agglutinin reaction is due to a nonspecific stimulus of the immune mechanism of vaccinated persons. Nonspecific response to an unrelated antigen has been demonstrated experimentally by Clark.[5] Dreyer's rules for group agglutinations among vaccinated persons may not apply to this reaction. No cases have been examined for agglutinins just before the attack, but there is no doubt that the agglutinins rise and fall in vaccinated patients during an attack of jaundice. This phenomenon has not yet been observed personally in the examination of a number of other diseases unrelated to typhoid.[6]

On the other hand, the reaction may give a clue to some form of food poisoning. It is improbable that there is an actual infection with human paratyphoid bacilli, as evidence of their presence would have been found by more investigators. The French workers [7] in Gallipoli during the war reported a paratyphoid D organism causing jaundice. This organism was later identified at the Pasteur Institute as paratyphoid A, and cannot be accepted as the cause of this disease.[8]

Two Polish investigators [9] have recently reported a study of sixty-seven cases of "catarrhal jaundice," with three deaths. They obtained agglutination of the typhoid group of organisms in about 20 per cent. of the cases, and a marked agglutination with *B. aertrycke* (Stanley) in 80 per cent. of the cases. This organism was isolated from the blood in one case. The authors believe that an "antigenic mosaic" of paratyphoid bacilli is concerned in the etiology of so-called cases of "catarrhal jaundice." This may be true in the sense of a toxemia rather than of an infection.

On inquiry, it was found that considerable work had been done on this disease in Coblenz by our medical officers. A report of the work by Michie [10] states that 218 cases occurred in two years in about 14,000 men. No evidence of infection with *Leptospira* was found. The most probable cause was believed to be food poisoning due to sausage.

In this connection, the history of several of our cases is suggestive. A common story is that the patient has been home or away on furlough or making a change of station; has overeaten or eaten irregularly, and soon after return to station, has had an intestinal upset followed by jaundice. One officer fixed the cause definitely as some canned salmon.

It is desired to record the reaction mentioned above for what it is worth, and to suggest that persons vaccinated against the typhoid group may be sensitized for agglutinins to some toxin of food poisoning analogous to that of botulism, which, however, attacks primarily the liver. Group vaccination apparently gives no antitoxic immunity, as the cases among the vaccinated seem to be of average severity. In any case, the work done in this laboratory supports the growing opinion that the disease is primarily a hepatitis rather than a "catarrhal jaundice."

SUMMARY

1. An unusual number of cases of jaundice have recently occurred in the army, as well as in the civilian population of the Second Corps Area.

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[2] Symmers, Douglas: Epidemic Acute Hemorrhagic Jaundice of Toxic Origin; Its Symptoms and Pathology, J. A. M. A. **74**:1153 (April 24) 1920.

[3] Williams, Huntington: Epidemic Jaundice in New York State, J. A. M. A. **80**:532 (Feb. 24) 1923.

[4] Rabinger, H., and Bahr, L.: Ztschr. f. Hyg. u. Infections-kr. **95**:442, 1922. Wellfuer and Wendlandt: Ibid. **94**:192, 1921.

[5] Clark, P. F.; Zellmer, C. E., and Stone, H. W.: J. Infect. Dis. **31**:215 (Sept.) 1922.

[6] Wood, F. C.: Chemical and Microscopical Diagnosis, Ed. 3, New York, D. Appleton & Co., p. 242.

[7] Sarrailhé, A., and Clunet, J.: Lancet **1**:664 (March 25) 1916; Bull. et mém. Soc. méd. d. hôp. de Paris **32**:45, 563, 1916.

[8] Martin, C. J.: J.-R. A. M. C. **30**:102, 1918. Hurst, A. F.: Brit. M. J. **1**:527, 1917.

[9] Anigstein, L., and Milinska, Z.: Medycyna (W[illegible]) **1**:63, 1923.

[10] Michie, H. C.: Mil. Surgeon 5[illegible] (Ap[illegible]

2. No evidence could be obtained of infection with *Leptospira* of Weil's disease.

3. No evidence was found of actual infection with the typhoid group.

4. Several cases gave a definite agglutination to paratyphoid B bacilli and less marked agglutination of typhoid and paratyphoid A bacilli. The agglutinins disappeared in a short time. The patients had been vaccinated with triple typhoid vaccine, but at least a year before the attack.

5. The reaction may be nonspecific or may point to a toxemic form of food poisoning due to some member of the paratyphoid group.

6. The condition is believed to be a hepatitis rather than a "catarrhal jaundice."

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PROGNOSTIC VALUE OF ANEMIA IN CHRONIC GLOMERULAR NEPHRITIS *

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Since the advent of recent methods for studying renal function, a great deal of additional information has been gained which aids in the diagnosis and prognosis of renal disease. The work of Myers[1] and his associates on the relationship of increased concentration of creatinin in the blood, and life expectancy in chronic nephritis, has been of great value in drawing accurate prognostic conclusions. These workers have shown that the maintenance of a high level of creatinin (5 mg. or more for each 100 c.c.) in the blood indicates a very grave prognosis, and that values from 2 to 5 mg. for each 100 c.c. are of serious import. These conclusions have been amply verified. A consistently high level of blood urea, or a continued low excretion (5 per cent. or less of phenolsulphonephthalein in the urine in two hours), also usually indicates a serious prognosis. Moreover, the ophthalmoscopic examination is important in reaching a conclusion regarding life expectancy. The presence of a characteristic neuroretinitis of chronic glomerular nephritis usually indicates a severe renal injury and a serious prognosis. Unfortunately, these valuable procedures have not been universally applied because of the technical skill necessary for their use. Any clinical method of less complexity, which would give an equal or approximate amount of information, would be gratefully received by clinicians.

ANEMIA IN NEPHRITIS

The anemia of chronic glomerular nephritis has long been recognized. Bright[2] states that the healthy color of the countenance fades, and that the pallor is noted some time after onset, with headache, suppressed urination and edema. In a previous study of the anemia of chronic glomerular nephritis, we reported certain additional facts concerning its cause, mechanism of development, and importance as a diagnostic and prognostic sign. Loss of blood and albumin were demonstrated not to be the cause of this type of anemia. Excessive hemolysis was not found. The question of diet in the production and maintenance of anemia was studied. In the work of Whipple[3] and his associates, the effect of different diets on blood regeneration in the bleeding anemia of dogs was noted. They found that, with excessive carbohydrate diets, the regeneration of blood was retarded.[4] It is very possible that slow regeneration in the anemia of chronic glomerular nephritis bears some relationship to the low protein and excessive carbohydrate diets that are so uniformly given in this disease. We believe, however, that more probably the severity and chronicity of the anemia stand in closer relationship to the severity of the toxic injury which is responsible for the "renal break." No evidence was found to show that hydremia was responsible for the anemia of chronic glomerular nephritis. Considerable data were obtained which showed that the bone marrow probably undergoes injury concomitantly with the retinal, cardiac and renal tissues. Anemia does not become evident until two or three weeks have elapsed. This can be explained by the diminished erythrogenic function, the replacement of cells falling short of normal blood destruction. A close relationship was found to exist between anemia and the retention of creatinin in the blood. In twenty cases in which the creatinin values were 5 mg. or above for each 100 c.c. of blood, a marked anemia was found. In this group the average hemoglobin was 48.5 per cent., Dare, and the erythrocyte count was 2,950,000. Nineteen patients in this series died within ten months from the time of observation.

OBSERVATIONS ON CREATININ RETENTION IN THE BLOOD, AND ANEMIA IN CHRONIC GLOMERULAR NEPHRITIS

One hundred and thirty-nine cases of chronic glomerular nephritis[5] studied at the Mayo Clinic during the last two and one-half years are included in this report. All cases were excluded from this study in which marked complicating diseases, such as tuberculosis, malignancy, chronic sepsis, pyelonephritis and marked blood loss, were present, which in themselves could cause anemia. Our study has convinced us that in this disease the presence of anemia in the degree

TABLE 1.—*Mortality Rates * in Chronic Glomerular Nephritis with Different Concentrations of Blood Creatinin*

Creatinin Mg. for Each 100 C.c.	Cases	Patients Living	Patients Dead	Not Heard from	Mortality per Cent.	Per Cent. Showing Anemia		
						60 to 70 (Dare)	60 or Less	Total Incidences
2 and less..	31	24	3	4	19	22 (7 cases)	3 (1 case)	26
2 to 5.......	41	13	23	5	56	46 (19 cases)	27 (11 cases)	73
5 and over.	67	7	57	3	86	25 (17 cases)	71 (48 cases)	96

* Length of observation, from nine months to two and one-half years.

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* From the Division of Medicine, Mayo Clinic.

[1] Myers, V. C., and Killian, J. A.: The Prognostic Value of Creatinine of the Blood in Nephritis, Am. J. M. Sc. **157**: 674-695, 1918.

[2] Bright, Richard: Cases and Observations Illustrative of Renal Disease Accompanied with Secretion of Albuminous Urine, Guy's Hosp. Rep. **1**: 338-379, 1836.

[3] Hooper, C. W., and Whipple, G. H.: Blood Regeneration After Simple Anemia, Am. J. Physiol. **45**: 573-577, 1918.

[4] This observation was incorrectly quoted in our former paper (The Anemia of Chronic Nephritis, Arch. Int. Med. **30**: 817-840 [Dec.] 1922) as follows: "Hooper and Whipple have shown that in simple anemia, secondary to hemorrhage, of dogs the blood regeneration is more rapid when carbohydrate diets are given." This should have read ". . . when protein diets are given."

[5] Vollard and Fahr classification: It is important to make a careful clinical differentiation between the different types of renal lesions. Anemia is not usually found in focal lesions of the kidney, or in the so-called nephroses. In the vascular type of nephritis due to arteriosclerosis and hypertension, anemia follows periods of renal insufficiency, as in chronic glomerular nephritis.

indicated is of great prognostic importance. Because of the ease and universality with which the hemoglobinometer is used, we feel that, in arriving at a prognostic conclusion, closer study of this phase of the disease will render less necessary the use of the more elaborate blood chemistry methods.

Methods.—Estimations of hemogloblin were made by the Dare hemoglobinometer and by the method of Haldane-Palmer. As shown in our previous paper, the Dare instrument is quite accurate up to 70 per cent., and up to this figure corresponds closely to values obtained by the Haldane-Palmer method. In Chart 1 is shown the relationship that exists between the hemoglobin readings by these two methods. We have considered that anemia existed if the reading was less than 70 per cent. by the Dare instrument, and less than 85 per cent. by the Haldane-Palmer method, and if the erythrocytes numbered 4,000,000 or less for each cubic millimeter.

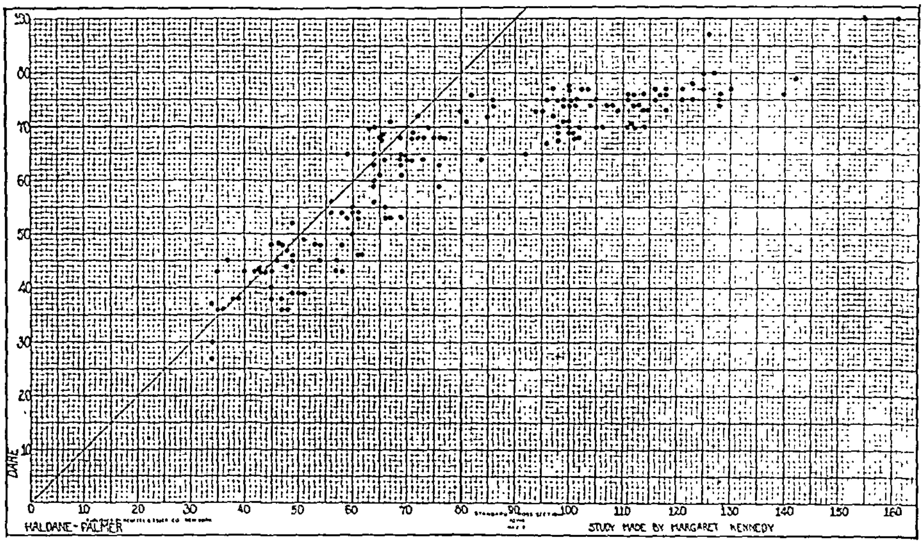

Chart 1.—Relationship of Dare and Haldane-Palmer hemoglobin estimations.

Creatinin Retention and Life Expectancy.—In Table 1, the 139 cases of chronic glomerular nephritis are divided into three groups, according to the degree of concentration of creatinin in the blood. The difference in mortality rate is strikingly apparent, and these statistics correspond to those of other observers. Myers and Killian have reported that, in their series of eighty-five cases with creatinin values of 5 mg. or over, eighty patients died within the five year period. Subsequent work by various investigators has amply corroborated the fact that creatinin retention in such a degree indicates a bad prognosis in cases of chronic glomerular nephritis.

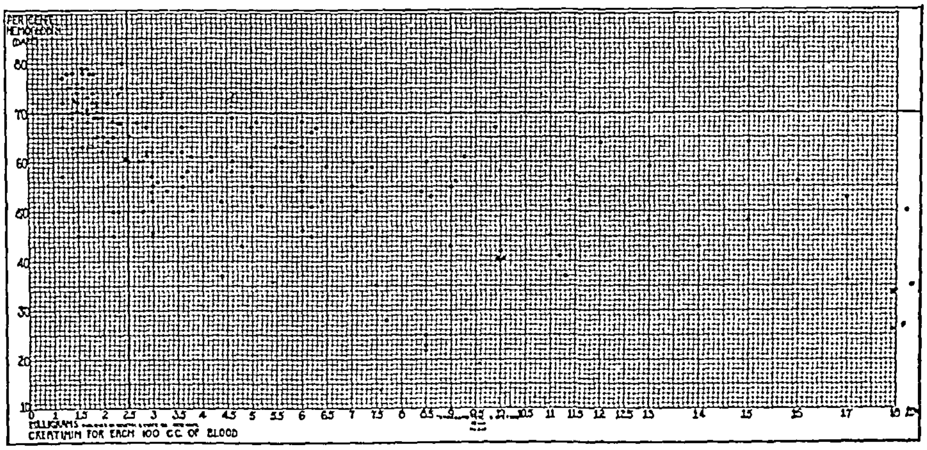

Chart 2.—Relationship between creatinin and hemoglobin values.

It is important to note that there are two types of creatinin retention: (1) the acute, such as is found in urinary obstructions, and various forms of toxic nephritis in which short rises of creatinin are compatible with a favorable prognosis; and (2) chronic, such as is found in chronic glomerular nephritis. The latter group, of course, is the one included in our study. Chart 2 shows the relationship between hemoglobin and creatinin values in the entire series of cases. In all but four cases, in which the creatinin values were 2.5 mg. and over, anemia was present.

Anemia and Life Expectancy.—Table 2 includes fifteen cases of chronic glomerular nephritis divided into three groups as follows: Group 1, chronic glomerular nephritis with no anemia; Group 2, chronic glomerular nephritis with moderate anemia (hemoglobin ranging from 60 to 70 per cent., Dare, or from 60 to 85 per cent., Haldane-Palmer method); Group 3, chronic glomerular nephritis with marked anemia (with hemoglobin values less than 60 per cent., Dare or Haldane-Palmer methods).

In Group 1, of the thirty patients with no anemia, five died within two and a half years, a mortality of 18 per cent. Several of these deaths were due to cardiac and cerebral accidents, and could not be directly attributed to renal insufficiency. In Group 2, of the forty-six patients, nineteen died within from nine months to two and one-half years, a mortality of 46 per cent. In Group 3, sixty-six of the seventy-eight patients died during an observation period of from nine months to two and one-half years, a mortality of 85 per cent.

COMMENT

There seems to be no doubt that a close relationship exists between creatinin r [illegible] ion and anemia (though no etiologic r [illegible] hip [illegible] n demonstrated), and that impaire [illegible] somewhat parallel in the later stages of the disease. The relationship is an inverse one. Patients with high blood creatinin values usually have correspondingly low hemoglobin values and erythrocyte counts. We are convinced that the bone marrow partakes of the generalized tissue injury, although the impaired function does not always run parallel to the impairment in other tissues. We have observed a case in which the hemoglobin was 22 per cent. and the blood creatinin was 6.8 mg. for each 100 c.c. It would seem that at times the bone marrow receives a disproportionate amount of injury as compared with the renal tissue. Again, cases occur in which the renal tissue has received a disproportionate amount of injury as compared with the bone marrow. Perhaps increased tissue susceptibility explains this disproportion. The lethal threshold of kidney tissue is higher than the lethal threshold of erythrogenic tissue, and therefore death takes place from renal rather than from bone marrow injury, although the latter, no doubt, is a factor in the hastening of death by lowering the metabolism.

Table 2.—*Mortality Rates* in Chronic Glomerular Nephritis With and Without Anemia*

							Blood Findings Average	
Group	Degree of Anemia	Cases	Patients Living	Patients Dead	Not Heard from	Mortality per Cent.	Hemoglobin, per Cent.	Erythrocytes for Each C.Mm.
1	None........	30	22	5	3	18	..	....
2	Hemoglobin (Dare) 60 or 70 per cent.; erythrocytes 4,000,000 and over	46	23	19	4	46	65	3,730,000
3	Hemoglobin (Dare) 60 per cent. and less; erythrocytes less than 4,000,000	78	5	66	7	85	48	2,830,000

* Length of observation period varied from nine months to two and one-half years.

In this series of cases we have found only two patients with continued absence of anemia with marked renal insufficiency. We can offer no explanation for this except on the basis of disproportionate injury, but are convinced that more cases of this type are likely to be encountered in the future. We have noted that, in certain cases on first observation, renal injury was definitely evidenced by increased nitrogen levels in the blood, but anemia was absent. A gradual decrease of hemoglobin and erythrocytes is found if these cases are observed over a period of from two to four weeks. In another series of twelve patients the "renal break" took place during the hospital period, and subsequent examinations of the blood revealed the onset of definite anemia within the time limits just stated.

Comparison of the mortality rates in the anemia group and in the creatinin retention group shows a parallelism. If moderate anemia is present, that is, if the hemoglobin is between 60 and 70 per cent., the mortality rate within a period of two and one-half years was 46 per cent., as compared with a mortality rate of 56 per cent., in patients having a creatinin retention of from 2 to 5 mg. for each 100 c.c. In comparison of the group with severe anemia (that is, 60 per. cent. or below) with the group having creatinin retention of about 5 mg., the mortality rates are 85 and 86 per cent., respectively. It would seem, therefore, that these high degrees of anemia indicate a definite unfavorable prognosis, and that they should be regarded as of serious import.

CONCLUSIONS

1. Comparative studies of the percentage of hemoglobin and the concentration of creatinin in the blood in chronic glomerular nephritis indicate a close inverse relationship.

2. Hemoglobin of 60 per cent., or less, has approximately the same serious prognostic significance within the two and one-half year period as have blood creatinin values of about 5 mg. for each 100 c.c.

3. The prognostic value of the anemia of chronic glomerular nephritis has approximately the significance of the complicated blood creatinin determination.

STUDIES ON THE INTRAVENOUS INJECTION OF URIC ACID IN ANIMALS *

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In the course of an investigation [1] on the significance of an excess of uric acid in the blood in various dermatoses, we endeavored to determine whether it was possible to produce any disturbance of the skin in animals by the intravenous injection of large amounts of uric acid. Uric acid injections in man [2] had served only to illustrate, by its rapid elimination, the regulatory and protective power of the human organism. However, comparatively small amounts were injected and it was thought, in our work, that by using animals enormous quantities could be injected and some skin eruption might conceivably be evoked.

A 1 per cent. solution of uric acid in 0.44 per cent. lithium carbonate was used in all our experiments. The uric acid was determined by the method of Folin and Wu.[3]

Table 1.—*Uric Acid in Blood of Rat*

	Mg. per Hundred Cubic Centimeters
Before injection	Trace
After injection:	
0 minutes	600.0
15 minutes	40
30 minutes	15
60 minutes	Trace

A number of albino rats, each weighing 115 gm., were selected. The normal blood uric acid was determined in a few. The rest were then injected intravenously with 5 c.c. of the uric acid solution, equivalent to about 600 mg. per hundred cubic centimeters of blood, and the uric acid in the blood determined at various intervals, thereafter, one rat being used for each determination. All analyses were repeated several times. Several of the injected rats were kept under observation for two weeks.

Table 1 is typical of all our results. It shows the amount of uric acid retained in the blood after the intravenous injection of the equivalent of 600 mg. of uric acid per hundred cubic centimeters.

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* From the Research Institute of Cutaneous Medicine, Philadelphia.

[1] Schamberg, J. F., and Brown, H.: The Relationship of Excess of Uric Acid in the Blood to Eczema and Allied Dermatoses Based on an Analysis of Over Two Hundred Cases, Arch. Int. Med. **32**: 203 (Aug.) 1923.

[2] Griesbach, W.: Biochem. Ztschr. **101**: 172, 1920.

[3] Folin, O., and Wu, H.: J. Biol. Chem. **38**: 81 (May) 1919.

It will be noticed that there was practically no uric acid in the blood before injection, which is contrary to the view expressed by Folin and Morris,[4] who found that the albino rat's blood contained from 2 to 3 mg. per hundred cubic centimeters; that is, about an amount equal to that in human blood. The very rapid elimination of uric acid, in spite of the enormous quantities introduced, made it probable that there would be no effect on the skin. In fact, except for a marked diarrhea and convulsive breathing lasting about fifteen minutes after the injection, rats under observation for several weeks showed no untoward results.

Thirty minutes after the uric acid injection, when the blood uric acid revealed 15 mg. per hundred cubic centimeters, the kidney contained 12 mg. per hundred grams, and the liver and skin only traces of uric acid. It would seem, therefore, that the removal of uric acid was taking place in two ways: by direct elimination through the kidneys, and by the breaking up of the uric acid by the uricase of the liver.

Similar experiments with a dog likewise produced negative results on the skin. A dog, weighing 14 kg., was maintained for four days on a uniform diet containing a moderate amount of protein. Before feeding on the fifth day, 40 c.c. of the uric acid solution (equivalent to about 30 mg. per hundred cubic centimeters of blood) was injected into the left jugular vein. Blood was drawn from the right jugular. There was no reaction.

Table 2 shows that the elimination of injected uric acid in a dog is about as rapid as in the case of the rat.

Table 2.—*Uric Acid in Blood of Dog*

	Mg. per Hundred Cubic Centimeters
Before injection	0.4
After injection:	
0 minutes	30.0
10 minutes	3.8
15 minutes	2.6
30 minutes	1.5
60 minutes	0.8
120 minutes	0.3

Repeated intravenous, as well as subcutaneous injections, failed to produce any changes in the skin.

CONCLUSIONS

1. Our experiments would indicate that the blood of the albino rat contains only slight traces of uric acid.
2. Enormous amounts of uric acid are removed from the animal in a very short time. This is accomplished either by the action of the liver or by elimination through the kidneys. Analyses of the organs indicate that both methods are probably operative in the process.
3. No cutaneous manifestations were observed by intravenous or subcutaneous injections of large quantities of uric acid.

2101 Pine Street.

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[4] Folin, O., and Morris, J. L.: J. Biol. Chem. **14**: 509, 1913.

Parent and Offspring.—When one parent is feebleminded and the other epileptic, the results are commonly still more disastrous. In fifteen matings of this kind studied by Davenport and Weeks, twenty-eight of the fifty-five offspring were epileptic, twenty-six were feebleminded, and one was insane. —Holmes: Studies in Evolution and Eugenics, New York, 1923.

Clinical Notes, Suggestions, and New Instruments

GUINEA-PIG INOCULATION FOR TUBERCLE TEST*

Raymond L. Schulz, M.D., Los Angeles

Several methods of facilitating the rapid recovery of tubercle bacilli from inoculated guinea-pigs have been suggested. Intraperitoneal inoculation requires at least six weeks for the satisfactory development of lesions, subcutaneous inoculation at least four weeks. Exposure to roentgen rays previous to inoculation has been suggested to increase the susceptibility and make possible a recovery of the tubercle bacillus in two weeks. With intrahepatic inoculation, a search for tuberculous abscess is made after two weeks. All these methods require killing the animal, the test is interrupted, and further observation is impossible, particularly in apparently negative or doubtful cases. Besides, it may be necessary in some of these tests to make tissue examinations in order to arrive at a diagnosis.

With intracutaneous inoculation, a result can be obtained in less than two weeks; the development and location of the lesion are always under observation, and the animal may be kept alive for further observation if desired, particularly when there is a tendency toward a negative result.

The method is especially adapted for the detection of tubercle bacilli in urine or other fluids that contain but little sediment without secondary infection. The urine is centrifugalized, and the sediment of several tubes may be concentrated into one.

The groin of the guinea-pig is shaved and cleaned. About 2 c.c. of the suspected fluid is drawn into a hypodermic syringe with a small needle. The injection is made intracutaneously about the midportion of the thigh so as to produce a bleb about the size of a lima bean, and if any fluid is left in the syringe, it may be injected subcutaneously.

If the amount of cellular material injected is not enough to produce necrosis, the resulting induration at the site of injection subsides almost completely in about six days, and *only a minute nodule remains. After that, if tubercle bacilli* are present, a small tubercle develops at the site of inoculation which becomes inflamed and shows evidence of lymphatic dissemination. By about the thirteenth or fourteenth day, the nodule may be about 3 mm. in size and slightly elevated. It may then be incised under ether anesthesia, and smears made direct from the material in the center. A better way is to insert the point of a medium sized hypodermic needle into the center of the nodule, stir it around gently, and aspirate the material into the stem of the needle. Suction must be released before the needle is withdrawn, or the material, which is very small anyhow, will be drawn farther up into the aspirator and lost. A wire stylet is then inserted through the needle, which forces the contents out at the point. One or two smears are made and stained for tubercle bacilli. No difficulty should be experienced in finding plenty of them if the infection was present in the original specimen.

In case there has been considerable pus in the original material injected and an acute abscess forms at the site of inoculation which breaks down in a few days, the animal should be kept under observation. Smears may be taken immediately. The lesion may scab over and seem to be healing, but, if tubercle bacilli are present, it will break down again about the twelfth or fourteenth day, when smears should be taken. It is important that the material for smear be selected from the portion of the wound most likely to show bacilli. Very minute caseous tubercles can sometimes be seen; these are particularly useful for a test, and show an abundance of bacilli. If the tests are negative, the animal can be kept alive for further observation, if desired. The method is particularly useful also in proving the absence of tuberculosis from the opposite kidney in cases of unilateral involvement without necessitating too long a wait. Since the lesion develops in the skin and can be observed every day, the absorption of the injected material and the disappearance of induration will soon show the absence of tuberculosis. However, it is important that sufficient material be injected intracutaneously; subcutaneous injection alone should not be relied on.

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* Demonstrated before Los Angeles County Medical Society, June 1, 1922.

When one considers how long it takes for a culture of the tubercle bacillus to grow on medium in a test tube before becoming visible, it is not probable that the time for recovery of tubercle bacilli from the guinea-pig can be shortened to less than is possible by the foregoing method.

1020 Story Building.

POTASSIUM FLUORID AS A PRESERVATIVE FOR BLOOD *

Ralph H. Major, M.D., Kansas City, Kan.

The need of a satisfactory preservative in specimens of blood for chemical studies has long been felt in this clinic. This need has become greater with the increasing use of insulin.

Diabetic patients are often admitted to the hospital at hours when it is not possible to make estimations of the blood sugar and carbon dioxid, however desirable such examinations may be, and experience has shown us that specimens of blood collected in oxalate solution may be unsatisfactory for study the following day, even when kept on ice. The need of a preservative is also felt when the physician without adequate laboratory facilities wishes to mail a specimen of blood for determination of the sugar and carbon dioxid tension.

We have been experimenting recently with various substances which are described as having an antiferment action and which should thus either delay or prevent the glycolytic activity of the blood. Some of these substances proved fairly satisfactory, while others were of no value.

The most satisfactory substance used was potassium fluorid. A saturated solution was employed, one drop being added to each 5 c.c. of fresh blood. No oxalate is necessary, since the potassium fluorid effectually prevents clotting.

In Table 1 are presented the results of a series of analyses of single specimens of blood at varying time intervals. All specimens were collected in test tubes containing the potassium fluorid solution, which had been stoppered with cotton plugs and autoclaved. All were kept at room temperature.

Table 1.—*Results of Blood Sugar Analyses at Varying Intervals* *

No.	Sugar		Interval
	First	Second	
1	333	330	5 days
2	91	93	2 days
3	74	81	5 days
4	320	323	4 days
5	168	158	7 days
6	133	132	5 days
7	91	91	24 hours
8	125	125	24 hours
9	143	143	7 days
10	118	111	2 days
11	80	80	5 days
12	133	133	2 days
13	100	90	4 days
14	149	143	8 days

* Specimens preserved with potassium fluorid solution. Sugar in milligrams per hundred cubic centimeters. "First" indicates first determination; "second," second observation.

An examination of this table shows that in fourteen specimens of blood there was no change in the blood sugar readings for periods varying from twenty-four hours to eight days. A few specimens not included in this table, showing a marked fall or absence of blood sugar in a few days, proved on examination to be contaminated with bacteria.

In Table 2, the results of analyses at the end of one week are shown, in twenty specimens. Ten of these were in test tubes stoppered only with cotton, while ten were sealed with paraffin. All of the specimens were kept at room temperature, and determinations were made of both the sugar and the carbon dioxid tension.

An examination of the results of this table shows that the twenty specimens, at the end of one week, presented no marked variations in either the sugar content or the carbon dioxid tension. The same results were obtained in both the tubes stoppered with cotton, and in those sealed with paraffin.

All the blood sugar determinations were carried out by the method of Folin, and the carbon dioxid tension by the method of Van Slyke. The specimens of blood were obtained from patients with diabetes, from patients suffering from various other diseases, and from normal persons.

Table 2.—*Results of Blood Sugar and Carbon Dioxid Determinations at Intervals of One Week* *

No.	Sugar		Carbon Dioxid	
	First	Second	First	Second
1	118	118	40	43
2	91	95	30	32
3	100	95	39	40
4	100	99	44	40
5	88	95	38	40
6	87	80	40	37
7	91	80	40	42
8	105	101	41	40
9	91	80	39	41
10	77	80	47	46
11	105	95	40	41
12	120	130	41	35
13	238	223	38	40
14	95	100	37	38
15	65	75	43	42
16	74	80	47	49
17	103	105	47	51
18	82	73	41	51
19	67	56	49	49
20	132	133	44	43

* Specimens preserved with potassium fluorid. Sugar in milligrams per hundred cubic centimeters; carbon dioxid tension in per cent. by volume. "First" indicates first determination; "second," observation one week later.

SUMMARY

1. Specimens of fresh blood collected in sterile tubes containing a saturated solution of potassium fluorid in proportions of one drop to each 5 c.c. of blood have shown no change in blood sugar or carbon dioxid tension, for a period of one week.
2. Care must be taken to prevent bacterial contamination.
3. Oxalate solutions are unnecessary when potassium fluorid is used, as the latter prevents clotting.

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* From the Department of Internal Medicine, University of Kansas School of Medicine.

A FLUOROSCOPIC SIGN OF A PARTIALLY ADHERENT PERICARDIUM *

Nicholas Lukin, M.D., New York

During a fluoroscopic examination at the Bronx Hospital of the chest of a colleague, who about nine months previously had suffered from a serofibrinous pericarditis from which he had apparently completely recovered, I observed a rhythmic tug of a part of the left dome of the diaphragm near its center with each systole of the heart when the diaphragm was fixed in an inspiratory pause. This tug I interpreted as a sign of a pericardial symphysis, even when present only to a slight extent, because no other evidence of an adherent pericardium was present in that case. This sign is elicited during an inspiratory pause because "the fibrous pericardial sac is inserted over the dome of the diaphragm and adheres closely to the phrenic center. It gives only an inappreciable fluoroscopic shadow above the left portion of the diaphragm. This shadow disappears entirely in forced inspiration, the heart being then separated from the diaphragm by a clear space which corresponds to the base of the left lung and the lower edge of which is outlined for the greater part of its length against the clearness of the pulmonary tissues."[1] The rhythmic tug of a part of the diaphragm with each systole of the heart is distinctly visible in that clear space when the phrenum is fixed in inspiration because the visceral pericardium is adherent to the parietal pericardium even though in a small degree, and exerts a pull on it and through its insertion on the diaphragm with each cardiac contraction.

I observed the same tug in a young man whom I treated two years ago for a rheumatic endopericarditis.

The medical literature which I perused on the subject, while giving several radiologic signs of advanced and extentive pericardial symphysis, fails to mention this evidence of a recent and slight pericardial adhesion. Many cases of serofibrinous pericarditis clear up clinically, and it would seem desirable to examine these patients with the fluoroscope for evidence of pericardial adhesions, which, if present, of necessity offer a certain impediment to the heart's reserve.

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* Read before the Clinical Society of the Bronx Hospital, Oct. 8, 1923.

[1] Vaquez, K., and Bordet, E.: The Heart and the Aorta, Yale University Press.

Such cases need a more careful regimen than those in which the pericardial space remains entirely free, and may be easily determined through this fluoroscopic sign.

1437 Prospect Avenue.

A FATAL CASE OF MALTA FEVER

W. R. Tyndale, M.D., and L. E. Viko, M.D., Salt Lake City, Utah

Malta fever is endemic in herds of goats in southern Utah. In 1922, two herders in this region died of a condition said to resemble this disease.

In May, 1923, the patient, W. A. S., aged 33, the state veterinarian, went to this section with Dr. L. L. Daines, the state bacteriologist, to investigate the disease in the goat herds. May 15, he handled placental tissue from an infected animal; at this time he had a small cut on one hand, which, however, healed without incident. May 27, he developed chilliness and cramping pains in the legs, and the next day fever, epigastric pain and a constant headache. A few days later an unproductive cough and general pains appeared. These symptoms, with marked insomnia, sweating and weakness, continued until June 6, when they gradually subsided

The patient first consulted us for his present illness, June 9. At this time there were a few scattered râles in both lungs, epigastric tenderness and cardiac findings unchanged from those noted at an examination several years before. The temperature, pulse, white blood count, blood smear and urine were all normal. The diagnosis of Malta fever was considered, but could not be confirmed at this time by laboratory examinations.

Feeling much improved in a few days, the patient returned to his work against our advice. He was next seen by us, August 7, in another typical febrile attack, and gave the history of having had several in the interval, increasing in severity. August 10, he entered the Latter-Day Saints Hospital in Salt Lake City. No new physical findings were made out. The attack subsided, but was followed in a few days by another with fever, joint and muscle pains requiring morphin, sweating, cough, weakness and intractable insomnia. He became irrational and delirious, and died, August 16. While in the hospital, he showed a moderate leukocytosis, but all other laboratory examinations (including the Widal test and blood cultures) were negative except that *Micrococcus melitensis* was obtained by Dr. Daines from cultures of the urine.

Necropsy was performed, the day of death. Aside from old cardiac findings not significant to the present illness, it showed only chronic passive congestion of the lungs and liver (enlarged, firm "nutmeg" liver) and a firm, fibrous spleen. From the spleen Dr. Daines obtained cultures of *Micrococcus melitensis.*

1004 Deseret Bank Building.

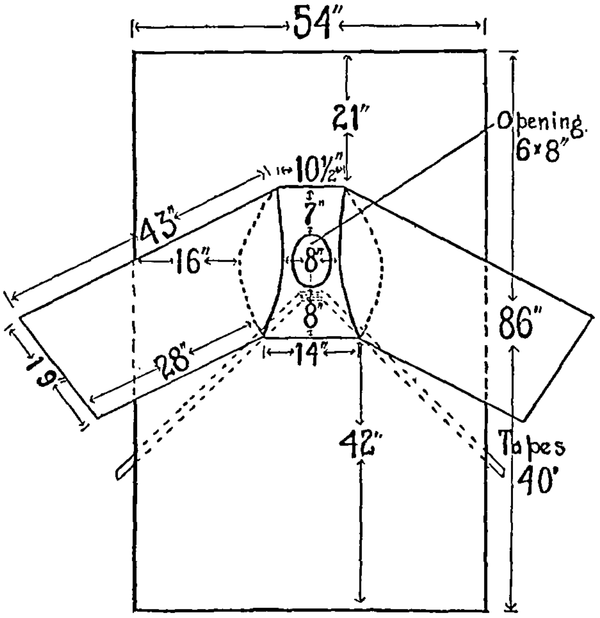
AN IMPROVED DELIVERY SHEET

William Benbow Thompson, M.D., Detroit

This sheet was devised in an endeavor to develop a delivery drape that would permit the patient a moderate amount of freedom of motion without seriously disturbing delivery room technic. Sack-like leggings are sewed directly to elliptical openings in a sheet made of any heavy material, such as Indian Head. The central portion is reinforced with an extra thickness of the same material. Two tapes are sewed on the under side below the opening in the central section. All seams are double stitched.

When it is desired to drape the patient, the limbs are thrust into the leggings, and the central aperture is arranged over the vulva. The assisting nurse then pins the attached tapes to the patient's gown, so that the lower portion of the reinforced area is tucked under the buttocks, and holds the drape closely to the vulva. Added security of arrangement may be obtained by the use of a pair of metal sheet holders. In practice here, however, the arrangement described has remained satisfactorily fitted for several hours without disarrangment by the patient's movements.

The drape is equally suitable for forceps and other operative deliveries in the extreme lithotomy position, since the large leggings may easily be slipped over the stirrup-holders. This is a considerable convenience in a busy service, since it obviates the use of a special type of sheet for this position.



Dimensions of delivery sheet.

The drape can be readily folded so that it may be put on quickly and without danger of contamination. When thus arranged, it can be sterilized with the package of routine delivery supplies.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

NATIONAL RADIUM EMANATOR.—A portable appliance for activating water with emanation; the emanation is emitted from a solution of radium chloride, barium chloride and sodium chloride. The emanations pass through a purifying chamber into a compartment containing the water to be drunk. The appliance is claimed to produce 40 microcuries (150,000 Mache units) of radium emanation to 1,000 Cc. of water daily.

Actions, Uses and Dosage.—See general article on Radium and Radium Salts, New and Nonofficial Remedies, 1923, p. 255.

Manufactured by the National Radium Products Company, New York. U. S. patent 1,452,709 (April 24, 1923; expires 1940). No U. S. trademark.

Physician as Advocate of Health.—The whole-time county health officer comes nearer giving the rural practitioner the same advantages that the city practitioner enjoys than anything else. Every physician should be an advocate of health. —Chichester, P. M.: *Virginia M. Monthly* 50:469 (Oct.)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 8, 1923

SECRETORY MANIFESTATIONS OF GASTRIC ULCER

The importance of accurate methods of examination applied to the problems of diagnosis and therapy has been well exemplified of late with regard to gastric ulcer, a subject in connection with which conjecture has vied with the scheme of trial and error to secure desired ends. Thus, hyperacidity has been described as a "classical symptom" of ulcer of the stomach;[1] and, consequently, the practitioner is taught that "the acid secretion should be reduced as a first step by regimen, diet and remedies,"[2] the latter being interpreted as alkalis. If one accepts Carlson's[3] judgment that "there is no disease known capable of inducing true gastric hyperacidity," and that "the pathologic deviations in acid and pepsin concentrations are invariably in the direction of decrease," the claim of hyperacidity can at best represent only hypersecretion, which has, in fact, been found to occur in some cases of demonstrable gastric ulcer. It has further been well established that in gastric and duodenal ulcer, uncomplicated by pyloric obstruction, there may be normal gastric acidity, so-called hyperacidity (that is, hypersecretion) or complete achylia—secretory conditions that are also found in normal persons.[3]

These conclusions are the rewards of the more recent methods of gastro-enterologic research; and they are bound to modify the management of cases of ulcer. Already there are evidences of an "awakening." Bell,[4] for example, has recently discovered among twenty-seven proved cases of chronic gastric ulcer no less than four showing complete achlorhydria, and in three there were extremely low gastric acidities. These seven cases were clinically indistinguishable from those associated with normal acidities. Neither the site nor the duration of the ulcer appeared to predispose to achlorhydria. Gastric ulcer is far more frequently associated with a diminished acidity than is duodenal ulcer, and it is exceptional to find complete achlorhydria with the latter. Bell recalls that modern medical treatment of peptic ulcer seeks, in general, to achieve a cure by neutralizing the acidity of the stomach contents as continuously as possible, and administering a physically non-irritating and chemically non-acid-provoking diet.

It is obvious that, however good the results may appear to be, the indiscriminate giving of alkalis cannot be regarded as rational when no acidity is present to be neutralized. Consequently, as Bell remarks, recognition of the wide variations of secretory activity occurring in gastric and duodenal ulcer is essential for the efficient treatment of these conditions. Significant in this connection is the growing record of untoward effects that may follow the indiscriminate alkaline treatment of peptic ulcer, the results simulating alkalosis.[5] Improved diagnostic skill permits greater discrimination in therapy; and the patient benefits from both.

THE ABSORPTION OF DRUGS THROUGH UNUSUAL CHANNELS

The barriers to absorption appear to be so perfect in certain parts of the body that we have become accustomed, either instinctively or deliberately, to discount the possibility of intoxication through them. Probably the best illustration of such disregard of potential danger applies to the every-day treatment of the skin. This surface, which, from a physiologic standpoint, is only a thick membrane, is repeatedly subjected to contact with toxic gases or poisons in solution without much fear of untoward consequences. The workman is often exposed in this way to products that would unquestionably be noxious if they were to penetrate as far as the subcutaneous tissues. With evident unconcern, the surgeon bathes his skin with poisonous antiseptics that he well knows would bring about violent reactions if they were in contact with the enteric rather than the cutaneous surfaces of his body.

In the skin and its appendages are found the extremes of protective safety, which leads man to indifference in regard to them. Even the epidermis, however, is not immune to harm from such poisonous irritants as the "mustard gas" of war time. There are regions of the body less perfectly protected than by the skin but which are trusted to permit only slight penetration. Macht[6] has given a suggestive indication of illustrative drugs that are employed therapeutically by the general practitioner as well as by various specialists, primarily for their local effect on a particular organ or tissue. Thus, ophthalmologists use atropin for its mydriatic effect, cocain for local anesthesia, and various antiseptics with the intent that these drugs shall exert their foremost action on the eye, penetrating, if absorbed, only a short distance below the point of application, without entering the general circulation. Otologists introduce phenol (carbolic acid) into the ear canal, expecting the drug to exert a pharmacologic effect on the local structures. Again, dentists inject anesthetics into the gums or along nerve canals, also expecting the drugs to act locally; and gynecologists prescribe douches, suppositories and other local medicaments with the aim of restricting their therapeutic influence as far as possible to the organs to which they are applied.

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[1] Emerson, C. P.: Essentials of Medicine, Philadelphia, J. B. Lippincott Company, 1920.

[2] Handbook of Therapy, Am. Med. Assn., Chicago, 1920, p. 293.

[3] Carlson, A. J.: The Secretion of Gastric Juice in Health and Disease, Physiol. Rev. **3**: 1 (Jan.) 1923.

[4] Bell, J. R.: Gastric Ulcer and Achlorhydria, Arch. Int. Med. **32**: 663 (Nov. 15) 1923.

[5] Hardt, L. J., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.

[6] Macht, D. I.: Absorption of Drugs Through the Eye, Ear, Teeth and Esophagus, J. Pharmacol. & Exper. Therap. **22**: 123 (Sept.) 1923.

Recent studies[6] at the Johns Hopkins University indicate that many of these seemingly out-of-the-way channels are, indeed, permeable in no small measure to potent drugs. Clinical experience has already incriminated the conjunctival sac; and Macht has now demonstrated that untoward results are not necessarily due to the penetration of the drugs used through the lacrimal duct into the nasal duct, thereby leading to absorption by the oral channels. For example, sufficient apomorphin to produce vomiting can be absorbed from the environment of the eye even when the tear ducts are not patent. Death has been produced experimentally in animals through absorption of poisons from the external ear cavity. Even the dental alveoli afford a possible pathway. Now and then all of these circumstances are realized through some untoward effect. They deserve, however, to be kept in mind more generally.

A VALUABLE CONTRIBUTION OF ANIMAL EXPERIMENTATION

The beneficent help that experimentation on animals has given to practical medicine in the past continues to be manifested in the current history of medical progress. If our citizens in scientific centers are to be encouraged, as was urged in a recent issue of THE JOURNAL,[1] to support the efforts of investigators to secure vagrant animals that may be devoted to the endeavor to lessen disease and prolong life, it will be advisable to keep some of the striking benefits clearly before physicians. In truth, scarcely a week goes by without registering in the domains of the experimental sciences some important finding through biologic methods that is likely to attain application in diagnosis or therapy. An instance of immediate significance has just been recorded by Warren and Whipple.[2] It is concerned with some of the unsuspected dangers of the roentgen ray.

Radiant energy of the type represented by radium is of interest because of its lethal influence on pathologic growths and on bacteria. The ultraviolet rays and lights that emit a large proportion of them have been employed as germicides in surface wounds. The penetrating power is slight, however, so that they can have little effect on deeper structures. The sufferings of the pioneers in the use of the roentgen rays indicate the severe disturbances which radiant energy of that type can produce. The skin burns resulting from exposure to the roentgen ray are particularly familiar; but the studies of Warren and Whipple seem to leave little doubt that the intestinal epithelium is at least as sensitive as the skin epithelium, and it may be more sensitive when we consider its increased distance from the roentgen-ray target and the intervening body tissues. Tests on animals show that the intestine can be so injured by the roentgen ray as to produce ulcers that are no less chronic than the familiar skin lesions.

There are scattered indications that the lessons learned through irradiation of the laboratory animals apply equally well to man. Erythema doses or larger doses given over the abdomen or the intestinal areas may cause injury to this sensitive intestinal epithelium. Particular care should be taken when "cross fire" is used over areas that include intestinal coils, as the loops may be seriously injured. As Warren and Whipple carefully point out, the sensitiveness of the intestine, in contrast to some of the other internal organs, to penetrating irradiation must not be interpreted as a contraindication to the use of hard or short wave length roentgen rays produced by the modern roentgen-ray tube and high power machines. Radium, they add, can produce serious injury, but this does not contraindicate its use in proper cases, with a clear understanding of all its effects. Their experiments indicate that these hard roentgen rays can injure intestinal cells deep in the abdomen, and this arouses hopes that similar influence may be exerted on deep lying tumors; but careful judgment is required when considerable doses of roentgen rays are to be given so as to involve intestinal areas. Thus the observation on the common laboratory animals indicating that irradiation over the abdomen can cause a common intestinal pathologic condition and clinical pictures gives, on the one hand, due warning to the radiologist who contemplates radiotherapy of abdominal areas; and, on the other, it points to new possibilities of progress through the use of potent radiations.

NEW APPOINTMENT AND PROMOTION POLICY FOR ARMY MEDICAL RESERVES

Elsewhere in this issue[1] are the new regulations of the War Department governing appointment and promotion in the medical sections of the Officers Reserve Corps. The evident purpose is to give to the medical profession a more satisfactory basis for appointment and promotion, and one free from the objectionable features of former requirements. Under these new regulations, promotion in the reserve is given on the impartial and incontrovertible basis of length of commission. A man who serves five years in one grade,

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[1] Impounded Animals for the Service of Medicine, editorial, J. A. M. A. 81:1611 (Nov. 10) 1923.

[2] Warren, S. L., and Whipple, G. H.: Roentgen-Ray Intoxication, J. A. M. A. 81:1673 (Nov. 17) 1923.

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[1] New Regulations for Reserve Corps, Gover[illegible]t [illegible]vices, this issue, p. 1966.

and who has normally developed in his profession, is eligible for promotion to the grade above, provided he is physically qualified for a commission. Professional examination is waived for promotion from the lowest grade to the highest, with one notable exception. The reserve officer who passes from the grade of major to lieutenant colonel must be tested to determine his fitness for the administrative responsibilities of the higher grade. This is manifestly done to save the government as well as the individual from the injustice of incurring a responsibility for which the individual is not qualified or gifted. Even for this one examination, however, a distinct advance has been made, since the Surgeon General has differentiated between the character of service and responsibility that the citizen reservist will be called on to perform. Thus, this examination is divided into four broad types: for administrators, for sanitarians, for supply men and for the professional group. The last group includes consultants and chiefs of services and specialties in medicine and allied sciences.

It is evidently the desire of the Surgeon General to adapt the examination to the candidate's special field of endeavor, and by limiting the examination to one grade to avoid the unnecessary examination of busy professional men. The changes outlined have many advantages to the profession over prior rules, but none more acceptable than a clear, simple and fair rule of promotion which will apply equally and justly to all. The appointment features of the new regulations are also far superior to the former ones. Two groups are recognized. The first includes original appointees, who are given appointment by virtue of their established professional standing. The second includes former service men and men who, while not in the military service in the World War, were engaged in essential public service analogous to military service and necessary to functions of the government in the conduct of the war. There are many perplexing problems in adjusting the reappointment rank of the several classes in the latter group, but it is clear that the department has labored seriously to arrive at a just standard.

The organization of the reserve is a national responsibility which must be shared equally by the citizen and the professional soldier. The medical departments of the army and navy in a time of great national emergency come to include so great a majority of the active members of the medical profession that the responsibilities of these departments become that of the medical profession of America. The medical department of the army now calls for the cooperation of the body of the civil profession, and manifests a laudable spirit in offering appointment and promotion in the reserve under the most favorable possible terms consistent with the organization of a dependable agency. The defense plans for this country in a major emergency call for 45,000 medical, 8,000 dental, 3,000 veterinary, 700 sanitary and 4,000 medical administrative corps officers, while the present enrolment in these reserve corps is only 6,713 medical, 3,331 dental, 722 veterinary, 355 sanitary and 715 medical administrative corps officers.

The army medical department now seeks to enroll and classify personnel to fill places in prospective medicomilitary units, so that in a future emergency past errors may be avoided. The department has placed the reserve on a most favorable footing. It rests with the profession to come forward and, by joining hands, to establish a medical reserve system that will afford a protection for the present and guidance for the coming generation.

Current Comment

SCANDAL OF MEDICAL LICENSURE

The newspapers, and particularly those of the East, have been arousing considerable public interest by their discussions of the licensure scandal in Connecticut. The Connecticut investigation followed the recent exposé by the St. Louis *Star* of the ease with which a diploma was purchased in Missouri. This exposé directed the limelight on the serious conditions existing in other states, particularly Connecticut and Arkansas, which have been made the dumping ground of graduates of low-grade medical schools. For more than five years, The Journal has again and again warned these two states that their eclectic boards constituted a potential menace to their citizens. Moreover, provision for reciprocity between these and other states made these boards a menace to other states. Now that the scandal has burst upon the community, public interest has been aroused, and public officials have been encouraged to take action. The situation carries a lesson to every other state—a lesson that the Council on Medical Education and Hospitals and The Journal have been reiterating stedfastly and earnestly for more than twenty years. The only assurance for the people of any state that their physicians will be competent is a single standard of fundamental education for those who propose to treat the sick, and a single, nonpolitical examining board in each state to make sure that such persons meet the standard.

THE DISCOVERY OF HYDROCHLORIC ACID IN THE GASTRIC JUICE

One hundred years ago, this month, the English chemist William Prout[1] produced before the Royal Society of London his evidence showing that in the gastric juice "the acid in question is the muriatic acid and that the salts usually met with in the stomach are the alkaline muriates." The conclusive evidence was secured by skilful titration and distillation in the days when modern analytic chemistry was still in its infancy, and even the best of technic often encountered insurmountable obstacles when "organic" substances were involved. In the course of subsequent decades, the knowledge of the nature of the gastric acidity has become part and parcel of the current information of every school child; yet it is not so long since the debate regarding the validity of Prout's assertion still went on. That there is acidity in the secretion of the stomach was admitted, while the claims of muriatic, phosphoric, lactic and acetic acids were being pressed for recognition as the acid agent. Acidity of such strength as that of the gastric juice, Smith[2] has written in an illuminating review of the unique discovery, occurring in any other place in the body would occasion serious results. It is not strange, then, that the announcement of Prout's discovery of "free" hydrochloric acid in the gastric juice in December, 1823, caused a sensation among the scientific men of his day. And the vision of the English chemist receives this richly deserved commendation from Smith:

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[1] Prout, William: Phil. Tr. Roy. Soc. London, 1824, p. 45, et seq.

> The chemical sense and clear line of reasoning which Prout showed in making his experiments were sound, and history has proved that his deductions were correct. Later, Prout concluded that the source of the hydrochloric acid lay in the chlorides of the blood, from which the Cl^- (ion) is separated by vital or electrical action and passes into the stomach. Save for some new words given us by Arrhenius, how much farther have we advanced in these past hundred years in explaining the mechanism of formation of hydrochloric acid in the stomach?

ANOTHER VIEW OF THE DIPLOMA SCANDAL

The present diploma licensure scandal in Connecticut is fortunate in that it has turned attention to matters in which the public and public officials particularly have not taken sufficient interest. In the midst of all the tumult, the comment of the Marietta (Ohio) *Times* appears like a ray of light in an otherwise somber situation. The editor says:

> In a profession given to quackery, quacks would attract little attention. The counterfeiting of medical diplomas is in itself a tribute to the medical profession. Counterfeiting implies that the established currency is sound. So it is with this great profession. All the more reason, therefore, why the profession itself should make every effort to eliminate the quacks, and why the public should help by informing itself of every doctor's medical pedigree and ostracising the occasional pretender or crook.

AVITAMINOSIS AND STARVATION

Much of our knowledge of the significance of vitamins in nutrition and the possible bearing they may have on disease has been derived from investigations on birds. The classic experiments have consisted in feeding pigeons with highly milled rice, whereupon the animals presently show symptoms of nervous distress—polyneuritis gallinarum—which have been compared with the manifestations of human beriberi, a malady that may have somewhat similar genesis and neurologic signs. Administration of any of a large variety of foods brings prompt relief, and may initiate a return to health. One manifestation of a regimen deficient in vitamin B is the failure of appetite. Loss of weight inevitably attends such a situation, even in mammals.[3] Anorexia and consequent undernutrition are, however, manifestations of a diversity of disorders; consequently, the question has been raised as to whether the extreme results of so-called avitaminosis, particularly as it is observed in the animal experiments on which so much emphasis has been placed, are not in reality largely, if not entirely, a manifestation of inanition. To determine this, Terroine and Barthelemy[4] of Strasbourg have examined birds that have lost weight as the result of avitaminosis and of simple inanition, respectively. The analyses showed that nutritive decline and death ensue on the lack of vitamin B long before exhaustion of the body's reserve of fat such as invariably attends starvation. The conclusion seems warranted, therefore, that the manifestations of lack of vitamin B are not merely an expression of a lack of food. Whether the damage to the organism deprived of its vitamin supply is to be charged to upsets in the metabolic, digestive, secretory or nervous functions, for example, remains to be ascertained.

Association News

ANNUAL MEETING OF JUDICIAL COUNCIL

The regular annual meeting of the Judicial Council of the American Medical Association will be held at Chicago, Dec. 17, 1923. The members of this Council are: Dr. M. L. Harris, Chicago, chairman; Dr. W. S. Thayer, Baltimore; Dr. J. N. Hall, Denver; Dr. I. C. Chase, Fort Worth, Texas, and Dr. F. W. Cregor, Indianapolis.

ANNUAL CONFERENCE OF SECRETARIES OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

The secretaries of thirty-six state medical associations were present at the annual conference held at Chicago, November 16-17. Four others sent in last minute notification of inability to attend by reason of unforeseen emergencies. Except for the four states represented by these, the unrepresented associations were practically the same that have been unrepresented at previous conferences.

Illinois, New Jersey and Wisconsin were also represented at the conference by the presidents of their state associations, and the president-elect of the Ohio State Medical Association was in attendance.

Editors of state journals not also secretaries of state associations were present from Iowa, Kansas, Massachusetts, Nebraska, New Jersey and Pennsylvania.

The President, President-Elect, Board of Trustees and heads of departments of the American Medical Association were present at all sessions of the conference.

The presiding officers at the various sessions were: Dr. E. L. Hunt, secretary of the Medical Society of the State of New York; Dr. C. B. Conklin, secretary of the Medical Society of the District of Columbia; Dr. Ray Lyman Wilbur, President of the American Medical Association, and Dr. G. E. Follansbee, President-Elect of the Ohio State Medical Association.

The sessions of the first day of the conference were given over to consideration of two general themes, the first dealing with measures for increasing the efficiency of medical organizations for promoting the professional and economic status of the physician, and the second pertaining to methods for enabling medical societies to disseminate information for the public to best advantage. The second day was devoted to discussion of periodic medical examinations, medical defense and indemnity, automobile liability insurance, and the work of the Bureau of Legal Medicine and Legislation of the American Medical Association.

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[2] Smith, A. H.: The Centenary of a Unique Discovery, Sc. Month. **17**: 238 (Sept.) 1923.

[3] Cowgill, G. R.: Am. J. Physiol. **57**: 420 (Oct.) 1921.

[4] Terroine, E. F., and Barthelemy, H.: Avitaminose et inanition, Trav. de l'Inst. de Physiol gén. Univ. de Strasbourg **1**, 1919-1922.

A round table conference of editors of state medical journals was held on the evening of the first day of the conference, at which various matters of especial interest to this important group were considered.

The papers read at the conference and the discussions thereon will appear in full in the *American Medical Association Bulletin,* beginning in the January number.

MEETING OF THE BOARD OF TRUSTEES

Abstract of Minutes of the Meeting of the Board Held at the Association Headquarters, Nov. 15, 16, and 17, 1923

The meeting was called to order at 10:20 a. m., November 15, by the Vice Chairman, Dr. McDavitt; Dr. Phillips, the Chairman, took the chair at 10:30 o'clock. All members of the Board were present, as well as the ex-officio members: President Wilbur, President-Elect Pusey, and Speaker Warnshuis; also Austin Hayden, Treasurer; Dr. Olin West, Secretary, and Dr. George H. Simmons, Editor and General Manager.

The minutes of the meeting of the Board held at the annual session of the Association at San Francisco were approved as read.

The Secretary announced that, in compliance with the instructions of the Board, he had written letters of appreciation to Dr. Sarles, who retired from the Board, and to Dr. Musgrave, the chairman of the local committee at San Francisco.

NEW PRINTING EQUIPMENT

The General Manager asked for authority to purchase certain machinery for the printing department—another book sewing machine, book trimmer and presses—the total cost of which, he estimated, would be $19,716. The Board authorized the purchase of such machinery.

ANNUAL TABLES

The International Research Council announced the publication of Annual Tables to supersede a list formerly published in Germany and discontinued during the Great War. The undertaking is to furnish an international, authoritative source of information for research workers. At the Aug. 3, 1923, meeting of the Executive Committee of the Board, it was recommended that the Association cooperate financially with the International Research Council in the publication of these annual tables. On motion, duly seconded, the Board authorized a subscription of $100 annually for five years in support of this undertaking.

DATE OF THE CHICAGO SESSION

The General Manager brought up the question of the date of the next session of the Association in Chicago, which had been fixed for May 19 to 23. He reported that through the courtesy of Professor Cox of the Weather Bureau, he had ascertained the temperature in Chicago, by hours, during the third week of May for the last five years, and that in only one of the five years had the weather been warm enough to insure comfort in an unheated building, such as the Municipal Pier, where all the meetings will be housed. It was also stated that the Association had an option on the Pier for the first and the fourth weeks in June. However, a change in the date for the meeting cannot be made until the Republican National Committee decides the time and place for the next national Republican convention.

LOCAL COMMITTEE OF ARRANGEMENTS

The Secretary of the Association reported that the Local Committee of Arrangements for the annual session of 1924, with Dr. J. W. Van Derslice as chairman, had been appointed with the approval of the Executive Committee and the General Manager. The Board unanimously approved of the personnel of the Local Committee of Arrangements thus far appointed.

PROPOSED AMENDMENT TO THE CONSTITUTION AND BY-LAWS

A resolution to disassociate the editorship and general management of the Association which had been presented to the House of Delegates at the San Francisco session and, after consideration, referred to the Board of Trustees, was read by the Secretary of the Board.

The Secretary of the Board also gave an abstract of a lengthy communication devoted, in part, to the subjects of the foregoing resolution, written by Dr. Eagleton and directed to each member of the Board of Trustees.

After thorough discussion of the two points involved in the resolution, it was decided by a unanimous vote of the Board to include in the next annual report of the Board to the House of Delegates the following statements:

1. There is no reason at the present time for any change in the present policy concerning the editorship and general management of the Association as provided by the Constitution and By-Laws.
2. The Constitution and By-Laws provide for an ad interim meeting of the House of Delegates when such a meeting is deemed necessary.

AMERICAN RED CROSS

The Secretary of the Board reported that, in accordance with the instructions of the House of Delegates, he had transmitted to Red Cross Headquarters at Washington copies of the resolutions adopted by the House at the San Francisco session.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

The Executive Secretary of the Bureau, Dr. Woodward, presented a report on the activities of the Bureau since the San Francisco session. Among other subjects included in the report, the Board unanimously adopted the following resolutions:

1. That the Bureau on Legal Medicine and Legislation, in cooperation with the Committee on Legislation of the Section on Laryngology, Otology and Rhinology, be authorized to formulate and introduce a legislative bill regulating the labeling of lye and other caustic alkalis and acids manufactured for household use without further reference of the matter to the Board of Trustees.
2. That, as the American Medical Association held membership in the National Health Council through the Council on Health and Public Instruction and as the latter Council has been abolished, the affiliation of the Association with the National Health Council should be considered as terminated.

The Executive Secretary of the Bureau on Legal Medicine and Legislation stated that work has been begun on a model medical practice bill, which, when completed, will afford an opportunity for uniform laws on medical practice in the United States.

After luncheon, the Board reconvened at 1:45 p. m.

The resolution on public health presented to the House of Delegates, at San Francisco, by Dr. Leigh of Virginia, was considered, viz.:

Resolved, That the Council on Pharmacy and Chemistry of the American Medical Association be instructed to employ a trained publicity man, preferably a writer with an established reputation, whose duty it shall be to get into the lay press, daily papers, rural publications, magazines, etc., articles covering fully and accurately all of the activities of organized medicine.

On recommendation of the Reference Committee on Miscellaneous Business, the House of Delegates referred the resolution to the Board of Trustees for whatever action it deemed wise.

After extended discussion, the Board unanimously decided that it would be unwise to alter the present organization and plans of publicity utilized by the Council on Pharmacy and Chemistry through the Propaganda Department, which have proved very satisfactory in making known to the profession and the public the activities of the Council on Pharmacy and Chemistry and of organized medicine.

The Board also considered a second resolution presented by Dr. Leigh of Virginia, viz.:

Resolved, That the President and Secretary of the American Medical Association be instructed to confer with the medical directors of the larger life insurance companies which do preventive and educational health work with the object of securing their cooperation in educating the public about quacks and nostrums.

The Reference Committee on Medical Education recommended that this resolution be referred to the Board of Trustees, and the House of Delegates so ordered.

After discussion, the resolution was referred to the Bureau on Health and Public Instruction, with the recommendation that the Bureau act in accordance with its judgment in this matter.

UNITED STATES VETERANS' BUREAU

Dr. Charles W. Richardson, acting as a committee of the Board, made a report on the feasibility of the Board of Trustees taking the responsibility for a revision of the compensation rating tables of the United States Veterans' Bureau, as requested by the Director of the Bureau, Gen. Frank T. Hines. Dr. Richardson expressed the opinion that the proposed revision of the rating tables for compensation of disabled veterans would be a medical task; that the American Medical Association would be willing to aid the Veterans' Bureau in every way within its power; that the proposed work could probably be carried out by committees of qualified members of the profession in the larger cities of the country, but that it did not seem practicable for the Association, through its Board of Trustees, to assume such a responsibility.

After extended discussion, the final unanimous action of the Board was expressed in the following resolution formulated by Dr. Richardson:

Resolved, That the Secretary of the Board inform the Director of the Veterans' Bureau that the Board of Trustees of the American Medical Association would be most willing to [illegible] in a survey of the [illegible] for compensation of the Veterans' Bureau, and in the [illegible] headquarters to carry on the work. The Trustees would be willing to furnish the Director [illegible] a number of physicians [illegible] make the resurvey, [illegible] between the Director [illegible] this purpose; that the only [illegible] the Board [illegible] the resurvey would be [illegible] physicians.

[illegible]

The subject of [illegible] Association, and [illegible] *Medicine,* was [illegible] the President, the [illegible] the Editor and [illegible] man of the [illegible] *cine*) and others. The following resolution was [illegible] adopted:

Resolved, That the Board of Trustees [illegible] mittee to [illegible] at headquarters [illegible] adoption of [illegible] advertisements of [illegible] laboratories, [illegible] postgraduate [illegible] report to the Board [illegible]

[illegible]

President [illegible] education, and [illegible] ical [illegible] He emphasized [illegible] forms of [illegible] Association.

The Secretary [illegible] nostic clinic [illegible] at San Francisco [illegible] had adopted [illegible] the first [illegible] be arranged [illegible] for the organization [illegible] of the [illegible] the policy [illegible] be [illegible] of the [illegible]

[illegible]

The [illegible]

called attention to and read the following letter [illegible] New Haven:

[illegible]

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Chiropractor Fined.—According to reports, U. G. Weidman, a chiropractor of Montgomery, was fined $50 and costs for practicing medicine without a license, by Judge McCord, November 13.

Proposed Food Ordinance.—Dr. Judson D. Dowling, health officer of Birmingham and Jefferson County, has prepared a pure food ordinance which will be submitted to the Birmingham commission with the endorsement of the Retail Grocers' and Butchers' Association.

Conference of County Health Officers.—Nineteen of the twenty-two county health officers were in attendance at the annual conference of the county health officers of Alabama, held in Montgomery, November 26-28. Among the topics discussed were: "Malaria Control in the Organized Counties," by Dr. S. W. Welch, state health officer, and "The State's Antituberculosis Program," by Mr. J. M. Graham.

ARKANSAS

Hospital News.—The new St. Edward's Hospital, Fort Smith, was opened, October 16. This building was erected at a cost of $200,000 and has a capacity of 125 beds. The old hospital building is now used for a nurse's home.——The Masons of the state will erect a building for tuberculous children at the State Tuberculosis Sanatorium, Booneville, at a cost of $50,000.——Ground was broken, November 29, for the new hospital of the Arkansas Children's Home, Little Rock.

CALIFORNIA

Personal.—Dr. Alonzo B. Eckerdt, Fresno, formerly with the State Insane Hospital, Warmsprings, Mont., has accepted a government position in Honolulu.——Dr. Frances L. Newton has been appointed city health officer of Woodland.——Dr. Frederick W. Lux, San Francisco, was the guest of honor at a meeting of the Sonoma County Medical Society at Cloverdale, November 8.——Dr. John W. Shuman, until recently professor of internal medicine at the Beirut (Syria) College of Medicine, will practice in Los Angeles.

COLORADO

Sutcliffe Charged with Perjury.—It is reported that the Colorado Board of Medical Examiners has instituted charges of perjury against Dr. George Sutcliffe, Farmington, Conn., involved in the Connecticut grand jury probe of alleged fake doctors who "graduated" from various questionable medical colleges. Sutcliffe is charged with having made false statements when he took the examination of the state medical board in Colorado in 1920.

CONNECTICUT

Maternity Building Opened.—The women's building at the Hartford Hospital, erected at a cost of $500,000, was formally opened, November 16. It is a seven-story structure with a capacity of 105 beds, primarily for maternity cases. The amphitheater will seat 275.

Eighteen Licenses Revoked.—According to the latest reports, eighteen physicians in Connecticut had their licenses to practice revoked, as the first concerted result of the special grand jury investigation of the diploma mill. Those who came under the ban were: "Dr." George M. Sutcliffe, Unionville, who is under arrest on a charge of manslaughter; "Dr." Arnold Brien of Waterbury; "Dr." Nathaniel McCarthy of New Canaan; "Dr." Ludolf N. Bollmeier of Westport; "Dr." George D. Noeling of Bridgeport; "Dr." Lamar K. Tuttle of Stamford and his wife, "Dr." Frances Axman Tuttle; "Dr." Howard M. Wheeler of Bridgeport; "Dr." Frederick Harrison Works, who has resigned as assistant surgeon of the U. S. Veterans' Bureau Hospital No. 44, Roxbury, Mass.; "Dr." Isador Yochelman of Bridgeport; "Dr." Donald W. Stewart of East Windsor; "Dr." Aaron Glass of New Haven; "Dr." James A. Christian of Fairfield; "Dr." Peter Koraitis of New Britain; "Dr." Frank M. Webb of Bridgeport; "Dr." Pasquale Romeo of Bridgeport; "Dr." Modestino Coppola of New Haven, and "Dr." John R. Brinkley of Stratford. All were eclectic "doctors," some of whom had practiced as long as nine years.

The Diploma Inquiry Continued.—Further ramifications of the alleged medical "diploma ring" extending to the U. S. Veterans' hospitals and transatlantic steamers, were indicated, November 6, when the special grand jury reconvened at Hartford. This angle of the investigation is believed now to have been responsible for the conference held, November 24, by President Coolidge and Governor Templeton of Connecticut and State's Attorney Hugh M. Alcorn of Hartford. Following their visit to Washington, D. C., Dr. Frederick H. Works, passed assistant surgeon, U. S. Public Health Service, stationed at U. S. Veterans' Hospital No. 44, Roxbury, Mass. (who also had a Sunday practice at Stonington, Conn.), was summoned to Hartford to testify before the grand jury. Dr. Works holds a diploma from the Eastern University School of Medicine of Baltimore, 1913 (Senior Surgeon Pierce has since announced that Dr. Works has sent in his resignation to the service). "Dr." George Sutcliffe, who could not be found, returned voluntarily from Canada, November 25, to give his testimony, and Raymond Prisque, Michael M. J. Anthony, Donald Stewart, Samuel Posner, James W. Bush, Isador Yochelman, Aaron J. Glass, Aurelius R. DeJanis and a few others who were called were on hand to testify; but many for whom subpenas had been issued were found to have fled the country, going to Europe, South America and Canada. Evidence revealed that hundreds of medical diplomas had been distributed throughout South America, especially Venezuela and Mexico, at low rates (records showed that some were sold for as little as $25). The name of President Obregon of Mexico was listed without his knowledge or consent as one of the vice presidents of the Oriental University, Washington, D. C., according to documentary evidence laid before the grand jury. Francisco S. La Madrid, said to be the son of a prominent Cuban health official, was revealed as a purchaser of a high school certificate from Professor Sachs and a diploma from Drs. Adcox and Voigt. La Madrid, the grand jury was informed, has spent three years in an unsuccessful effort to graduate from an American medical college. At the request of the state's attorney it is stated that the Eclectic Medical Examining Board held a special meeting in a room adjoining the grand jury quarters, November 28, to prepare immediately to revoke such licenses of holders of fake diplomas as the jury many direct. Under the Connecticut law, an order of revocation of license must be signed by each member of the board.

DELAWARE

New Hospital.—Plans have been completed for the construction of a $35,000 hospital at Wilmington.

DISTRICT OF COLUMBIA

A Definite Health Program for Schools.—A campaign to improve the health of school children has been outlined by the Washington Tuberculosis Association. The program provides for a medical inspection of every child on admission to school; a definite record of physical defects which will permit checking them up when corrected; provision for correction of defects through school nurses, family physician and dentists; a systematic course of health training, to begin in the elementary schools and continue through high school providing marks on health subjects, and insistence on the correction of remedial physical defects before graduation. Such program, according to Dr. Frank W. Ballou, superintendent of schools, would be recreational, remedial and progressive. Dr. George W. Kober is president of the association and Dr. Harvey W. Wiley, vice president.

GEORGIA

Child Health Demonstration.—Dr. Bernard W. Carey, director of the division of communicable diseases of the Massachusetts Department of Public Health, Boston, has resigned to become director of the Athens Child Health Demonstration, which appointment is for a five-year term (The Journal, September 29, p. 1118).

ILLINOIS

Hospital for State University.—Work will start in the spring on the McKinley Hospital on the campus of the University of Illinois, Champaign. This $150,000 building, a gift of Senator William B. McKinley, will be one of a group which will form the south quadrangle. It will be three stories high and have a capacity of sixty beds.

Standards of Infectivity.—A set of standards known as "Standards of Infectivity Pertaining to Venereal Disease" has been officially adopted as a part of the rules and regulations of the department of public health. The standards have been printed in pamphlet form and are available to physicians, health officers, social workers, lawyers and judges of the courts on request, addressed to the director of public health, Springfield.

Chicago

Society News.—At a joint meeting of the Chicago Neurological and the Chicago Laryngological and Otological societies, December 3, Dr. Wells P. Eagleton, Newark, N. J., gave an illustrated lecture on "Operative Treatment of Inflammation of Brain and Meninges of Oto-Rhinologic Origin."

Hospital News.—The contract has been let for the erection of a $30,000 convalescent home for the Chicago Home for Convalescent Women and Children, West Adams Street.——The Franklin Hospital will erect a building at Franklin Boulevard and Sawyer Street at a cost of $350,000. It will have a capacity of 200 beds.

Personal.—Dr. Noble S. Heaney, head of the department of obstetrics and gynecology, Rush Medical College, was guest of honor and principal speaker at the annual banquet of the Champaign County Medical Society, Champaign, November 15.——Dr. Emil G. Beck, Chicago, has been awarded a medal by the Radiological Society of North America for his work on radiology.

INDIANA

Memorial to Physician.—A bronze tablet purchased by the community of Rushville, in honor of the memory of Dr. William Laughlin, pioneer citizen of Rush County, was recently unveiled.

Tuberculosis Organizations.—The tuberculosis death rate in Indiana has decreased 50 per cent. during the past six years, it was announced at a meeting of the Indiana Tuberculosis Association, recently. There were 3,980 deaths from the disease in 1917 compared with 2,577 in 1922. Eighty-four of the ninety-two counties of the state now have active antituberculosis organizations.

Psychopathic Ward for City Hospital.—A campaign to bring about the establishment of a psychopathic division of the City Hospital, Indianapolis, has been started. An ordinance providing for a $300,000 bond issue to finance the project was presented to the city council, November 19. Under plans prepared by Judge Wilmeth the new ward would be situated in a new wing of the City Hospital to be erected on the west side of the present plant. The city's psychopathic cases are now held in the Marion County jail pending examination by a lunacy commission which sometimes takes several days. With a psychopathic ward in the City Hospital, such persons would be admitted there for observation and treatment until admitted to the state institution for the insane at Indianapolis or dismissed.

IOWA

Iowa Clinical Medical Society.—At the autumn meeting of the society at Iowa City, November 17, the clinics were given at the State University College of Medicine and the children's hospital by members of the college faculty. Officers for the year are: president, Dr. William H. Rendleman, Davenport; vice president, Dr. Judd C. Shellito, Independence, and secretary-treasurer, Dr. Russell C. Doolittle, Des Moines.

KENTUCKY

Personal.—Dr. Arthur T. McCormack, state health officer of Kentucky, addressed the medical students at the University of Minnesota, Minneapolis, recently, on health problems.

LOUISIANA

Personal.—Dr. Robert W. O'Donnell, Monroe, has been appointed a member of the state board of medical examiners to succeed Dr. Thomas E. Wright, Monroe, whose term has expired.

Pullman Porter Arrested.—Dr. Oscar Dowling, president of the state board of health, had a T. & P. Pullman porter arrested for improperly heating a car, in violation of Article 313 of the Sanitary Code, State of Louisiana. The porter was fined $10.

Physicians Indicted.—An indictment charging Drs. John Dalton Young, Francis Fenwick Young and A. Laurie Young, proprietors of a sanatorium at Covington, with conspiring to violate the Harrison Narcotic Law was returned by the federal grand jury, November 23.

Joint State Health Conference.—A call for a conference of health officials of Louisiana and Mississippi to be held in New Orleans, December 14-15, was issued by Dr. Oscar Dowling, state health officer of Louisiana, November 24. Invitations have been sent to county and parish, municipal and state health officials and nurses of the two states. Public health measures will be discussed and plans made for extensive health work. The meeting was held last year in Jackson, Miss.

MARYLAND

Illegal Practitioners Arrested.—The state authorities of Maryland have started a campaign to prohibit the practice of medicine by persons who are not qualified. Several arrests have been made.

Patapsco Manor Sanitarium Burns.—Fire recently destroyed Patapsco Manor, a sanatorium for the treatment of nervous and mental diseases, at Ellicott City, causing a loss of $30,000. The patients were not injured. Plans are being prepared to rebuild the hospital on modern lines at the same location.

Cancer Committee Convenes.—At a meeting called by the Maryland Cancer Committee in Baltimore, November 18, methods for disseminating information concerning cancer were discussed. The speakers included: Drs. William H. Welch, director of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore; Dr. C. Hampson Jones, health commissioner of Baltimore; Surg.-Gen. Hugh S. Cumming, U. S. Public Health Service; Dr. Joseph C. Bloodgood, Baltimore, and Dr. George A. Soper, new managing director of the American Society for the Control of Cancer.

MASSACHUSETTS

Public Health School Opened.—The Harvard School of Public Health formally opened its school building on Van Dyke Street, Boston, November 21. The faculty of the medical school, the superintendents of hospitals of the city, members of the city and state health departments, and representatives of public and private health organizations, and many foreign physicians attended the ceremony. The building which was formerly the Boston Infants' Hospital was purchased by the School of Public Health and entirely renovated. It will permit establishing two new departments: vital statistics, and child hygiene. Dr. Eugene R. Kelley, state health commissioner, will have an office in the building and the editorial rooms of the *Journal of Industrial Hygiene* will be on the top floor.

MICHIGAN

Memorial to Dr. Vaughan, Jr.—The Clare Vaughan Infirmary at the Detroit Tuberculosis Sanatorium, Northville, was dedicated, November 15, to the memory of Dr. Victor Clarence Vaughan, Jr., who died in service in France, June 4, 1919.

MINNESOTA

Southwestern Minnesota Medical Association.—At the annual fall meeting of the association in Worthington, November 17, Dr. George G. Balcom, Lake Wilson, was elected president. The next meeting place will be Luverne.

North Central Branch Urologists.—At the Rochester meeting of the American Urological Association, a charter was granted for the North Central Branch, comprising Minnesota, Wisconsin, Illinois, Michigan, Iowa, Indiana, Ohio, western Canada and North and South Dakota. Members residing in the Twin Cities have extended an invitation to the society to hold its first meeting in Minneapolis and St. Paul, December 17-18, at which time the organization of this branch will be completed.

MISSOURI

To Help the Blind.—The ways and means committee of the board of aldermen, at St. Louis, has approved a measure permitting cigar stands to be installed in the lobbies of public buildings, and operated by blind persons selected by the Commission for the Blind.

Dr. Voigt's Liquor License Revoked.—The county court. Kansas City, October 17, "by reason of the scandal attached at the Ritz-Carlton Hotel.——Drs. Emanuel Libman and Benjamin Sacks of New York City, were guest speakers of the section on general medicine of the College of Physicians, November 26.——Dr. Victor C. Rambo, Philadelphia, has gone to Damoh, India, to do medical missionary work.——Dr. F. Hirst Maier has been made chief of the gynecological department of the Philadelphia Hospital.——Dr. Arthur P. Keegan has been appointed chief surgeon of St. Mary's Hospital, Philadelphia, to succeed Dr. Joseph H. Ross, and will take up his duties January 1.——Dr. J. Edwin Sweet, professor of surgical research in the University of Pennsylvania, delivered the Mütter lecture of the College of Physicians, December 7. His subject was "The Gallbladder: Its Past, Present and Future."——Dr. George E. Vincent, president of the Rockefeller Foundation, New York City, will be the guest speaker of the Philadelphia County Medical Society, December 12. His subject will be "An Adventure in Public Health." There will be a reception and supper at the Hotel Rittenhouse following the meeting.

RHODE ISLAND

Herbalist Arrested.—According to reports Robert Smith, Pawtucket, charged with practicing medicine without a license, was given a deferred sentence by Judge Hahn in the Superior Court, Providence, November 21. Dr. Richards of the state department of health stated that if Smith made no more diagnoses and collected no fees he would be allowed to continue to sell herbs.

SOUTH CAROLINA

Personal.—Dr. John M. Green has been reappointed city health officer of Charleston. Dr. Green has served almost continuously as city health officer for twenty-two years.——Dr. L. Rosa H. Gantt, Spartansburg, has been appointed a member of the state board of public welfare to succeed former Gov. Wilson G. Harvey, resigned.——Drs. James C. Harper, Greenwood, and John H. Power, Abbeville, were elected president and secretary-treasurer, respectively, of the Third District Medical Association at the meeting in Greenwood, October 11.

TEXAS

Philanthropy.—William Buchanan of Texarkana has given the state of Texas $1,000,000 to be used to alleviate suffering and distress in charitable and benevolent institutions.

Personal.—Dr. John W. Torbett, Marlin, has been appointed by Governor Neff as a member of the state board of health to succeed Dr. Albert F. Beverly, Austin, who resigned to become physician to the Texas State School for the Deaf, Austin.——Dr. Holman Taylor, Fort Worth, was elected president of the Conference of Secretaries of State Medical Associations and State Health Officers at the annual meeting in Washington, D. C., recently.

PORTO RICO

New York University May Establish Branch.—A commission comprising Drs. Bailey K. Ashford, Octavio Jordán and Guillermo G. Ortiz, head of the health service of Porto Rico, and two senators, sailed for New York, November 28, to discuss with the officials of Columbia University College of Physicians and Surgeons, New York City, the establishment of a school of tropical medicine in Porto Rico by the New York institution.

GENERAL

New Sections of Public Health Association.—The American Public Health Association announces that a section on health education and publicity, and a section on public health nursing have been established. These sections have been functioning for the last two years as provisional groups. All public health nurses, publicity workers and health educators are offered the opportunity to affiliate with either of these sections.

Deaths from Automobiles.—According to the U. S. Census Bureau 11,666 persons lost their lives in automobile accidents last year in the death registration area of the United States which area comprises 85 per cent. of the total population. This is an increase of 1,498 over the previous year, and represents a death rate of 12.5 per 100,000 population. California has the highest rate of the thirty-seven states in the registration area, its total representing 26.0 per 100,000 population, and Mississippi had the lowest rate with 3.4 per 100,000. Los Angeles had the highest rate in the sixty-seven cities reporting, showing 29.5 per 100,000.

American Aid for German Medical Science.—Dr. William F. Peterson, secretary-treasurer of the committee established to secure American aid for German medical science, writes that the first shipment of collected money to Germany, amounting to $10,000, has just been forwarded. Information received through Dr. Graham Lusk indicates that Rubner's laboratory has been closed by the state on account of lack of funds, and that Professor Rubner has been deprived of his position as professor of physiology, but retains control of the nutrition laboratory. It is also stated that five small German universities have been closed, possibly including the University of Tübingen.

American Child Health Association Elects Directors.—The association announced the election of seven new members to the board of directors, November 25, as follows: Dr. Albert J. Chesley, Minneapolis, secretary of the state department of health; Dr. Louis I. Dublin, statistician for the Metropolitan Life Insurance Company, New York; Dr. Henry F. Helmholz, professor of pediatrics for the Mayo Foundation at the University of Minnesota; Dr. E. L. Thorndike, professor of psychology, Columbia University, New York; Henry F. Vaughan, health commissioner of Detroit; C. Ormond Williams, National Education Association, and Christian A. Herter, assistant to Herbert Hoover, Department of Commerce, Washington, D. C.

Dinner to Visiting Health Officers.—A dinner was given at the Hotel Commodore, New York City, December 4, by the Rockefeller Foundation in honor of the group of health officers representing eighteen foreign governments, who for the past three months have been in the United States under the auspices of the health section of the League of Nations for the study and observation of various types of public health organizations (The Journal, September 22, p. 1032). Dr. George E. Vincent, president of the foundation, presided. Other speakers were John D. Rockefeller, Jr., Dr. William H. Welch, Baltimore; Surg.-Gen. Hugh S. Cumming, Washington, D. C.; Dr. Linsly R. Williams, New York City; Dr. W. S. Rankin, state health officer of North Carolina, and Dr. Norman V. Lothian, of the health section, League of Nations, Glasgow, Scotland.

Bacteriologic Stains Imported.—The department of commerce, bureau of foreign and domestic commerce and the U. S. Tariff Commission, Washington, D. C., announces the imports for consumption, through the port of New York, August, September and October, of bacteriologic stains, reagents and fine organic chemicals of coal-tar origin, dutiable under paragraphs 27 and 28, tariff act of 1922. The imports of bacteriologic stains for the three months totaled 16,870 grams, with an invoice value of $1,272. The imports of reagents and chemicals totaled 13,176 grams, with an invoice value of $155. Of the total quantity of bacteriologic stains imported for the three months, 95 per cent. came from Germany and 5 per cent. from England. Of the total quantity of reagents and chemicals imported for the three months the entire quantity came from Germany.

New Narcotic Order Forms Necessary.—Physicians desiring to buy morphin, cocain, or any other drug covered by the Harrison Narcotic Law, on and after Jan. 1, 1924, for their own professional use, must execute their orders on official order forms of the series of 1923. After the date named, orders on forms of earlier series cannot lawfully be filled. Up to December 31, order forms of either the series of 1923 or prior series may be used. One book containing ten original and ten duplicate forms of the new series will be furnished to every person who is qualified under the Harrison Narcotic Law to purchase taxable narcotic products, on requisition to the Collector of Internal Revenue for his district, using for that purpose form 679, as revised November, 1922. Remittance in the form of currency, or money-order or certified check made payable to the collector, must accompany each requisition, except that unused forms of prior series will be accepted in lieu of remittance, in equal exchange for the new forms. Forms of prior series, however, cannot be otherwise redeemed. All order forms must be used in strict accordance with the instructions accompanying them.

Shortage of Negro Physicians.—In a recent report, the Secretary of the Interior, Dr. Hubert Work, draws attention to the shortage of physicians and dentists of the colored race in the United States and urgently requests that Congress increase the facilities of the Howard University medical and dental schools at Washington. Secretary Work states:

> "At the present time there are only two educational institutions in the country where colored physicians and dentists are graduated annually and qualified to practice medicine and dentistry among their people. One of them is the Howard University, located in the city of Washing-

> ton, and supported in part by government appropriations and in part by outside donations. Recent investigations show that the colored population of the nation has increased to nearly 12,000,000, and that there is only one colored physician to 3,914 members of this race, while there is only one colored dentist to every 20,500 colored persons. As a matter of public welfare, it is of paramount importance that the government takes steps to wipe out this discrepancy and increase the number of colored graduating physicians and dentists. This can be done only through adding to the facilities of the Howard University medical and dental schools where many applicants for entrance are being turned away and are being denied the opportunity to prepare themselves for professional careers. I respectfully present this problem for the consideration of the President and Congress in the hope that at least an initial step will be taken to provide a future safeguard for the health of the colored race."

The Situation on Medical Licensure.—Reports from Missouri indicate that the survey of medical schools of that state made by Dr. F. C. Waite of Western Reserve University, Cleveland, at the request of the Missouri State Board of Health is to have prompt results. In his report, Dr. Waite stated that the records of Class C institutions in Missouri—the Kansas City University of Physicians and Surgeons, Kansas City College of Medicine and Surgery and the St. Louis College of Physicians and Surgeons—were so incomplete and carelessly kept that no graduate would be able to ascertain what his standing had been at the time of graduation. The report also asserted that it was not the policy of these colleges to investigate thoroughly the credentials of students as to their credits for entry, and consequently most students entered who would not have been accepted by a reputable school, or one making a serious endeavor to comply with the law or the demands of public welfare.

The state board of health promptly made charges against these schools, and stated that it would not recognize diplomas issued by them. It also asked the attorney general of the state to initiate action to revoke their charters. The attorney general, Jesse W. Barrett, has said:

> The State Board of Health has made charges against certain medical schools which are of a most serious nature. If even half of the state board's allegations can be proved, the schools ought to be put out of business. The practices which are alleged are intolerable.
>
> In order to give both the State Board of Health and the defendants an opportunity for placing their evidence fully before the court, I shall probably file quo warranto proceedings asking the forfeiture of the corporate charters, that form of action being the quickest and most direct. Our action, of course, will be taken promptly.

Meanwhile, in Connecticut the grand jury is continuing its investigations of physicians' licenses in that state by the eclectic board, and the eclectic board is asked simultaneously to revoke licenses at the request of the grand jury.

Dr. W. P. Sachs, under indictment in Missouri, is reported to have testified that he secured credentials for fifty-four men licensed by the eclectic board, and has furnished the names to the grand jury.

CANADA

Typhoid in Quebec.—Health authorities announced, November 28, that more than 100 people are ill, and that two have died in a typhoid fever epidemic caused by drinking polluted river water at St. Jerome, Quebec.

Public Health News.—An investigation of the financial affairs of the city board of health of Halifax, Nova Scotia, has disclosed a shortage in the accounts of the secretary it is reported. He has been dismissed and the department will be reorganized.

Insulin to Be Taxed.—The dominion government of Canada has issued a ruling that insulin will have to pay a sales tax in common with other articles of commerce. Authorities of the Province of Ontario have sent protests to Ottawa against this ruling inferring that a gift of such worth to the public is not a laboratory product manufactured for profit. The tax is 2¼ per cent.

Society News.—The Ontario and Quebec Section of the American College of Surgeons met in Ottawa, November 22-23. Among the speakers were Drs. George W. Crile, Cleveland; Walter W. Chipman, McGill University, Montreal, and Delmer A. Craig, Halifax, N. S.——At the annual meeting of the Prince Edward Island Medical Society at Summerside, recently, Dr. R. F. Seaman, Charlottetown, was elected president for the ensuing year.——Drs. Robert C. Redmond, Wingham, Ont., and Robert Stewart, Wingham, were elected president and secretary-treasurer, respectively, of the Huron Medical Association at the meeting in Goderich, October 5.——The annual Medical Day, held under the auspices of the Hamilton Medical Society took place, October 10. Drs. John H. Gibbon and Thomas Macrae, professor of surgery and professor of medicine, respectively, of Jefferson Medical College of Philadelphia, gave demonstrations.

University News.—Additions to the faculty of medicine at Dalhousie University, Halifax, N. S., have recently been announced as follows: Clyde Holland and Margaret Chase have been appointed to full-time positions in the departments of anatomy and pathology, respectively; R. J. Bean, formerly on the staff of Western Reserve University, has been appointed associate professor of histology and embryology; Prof. E. Gordon Young, associate professor of biochemistry at Western Ontario University, has been made head of the department of biochemistry; Prof. J. N. Gowanloch has been appointed to succeed Prof. J. A. Dawson in the department of biology. The recent affiliation of King's and Dalhousie has combined the teaching force of the two universities and Prof. N. J. Symons of King's will become instructor in psychology to the medical classes, while Prof. A. S. Walker, also of King's foundation, will lecture to the first year medical students on the "History of Thought"; a new subject.

LATIN AMERICA

Personal.—Dr. A. C. da Silva Castro, who died recently at S. Paulo, Brazil, bequeathed 900 contos, about $9,000, to be divided between the medical faculty at Rio de Janeiro and at S. Paulo.——The Gaffrée-Guinle Foundation at Rio de Janeiro has been endowed for the purpose of founding an institute for study, prophylaxis and treatment of venereal diseases. As planned, with the aid of the national public health service, it is to be unique, in its line, in the world. The work is already under way.——Dr. Juan B. Montoya y Florez, who has been appointed secretary of the Colombian legation at Paris, has left Medellin for Europe.

FOREIGN

The Septicentennial of the University of Naples.—The celebration of the seven hundredth anniversary of the foundation of the University of Naples is scheduled for May, 1924. The invitation sent to the other universities of Italy is accompanied by a photographic reproduction of the code of Frederick of Suabia, who founded the nucleus of the university in the thirteenth century.

Medical Insurance Society in Belgium. — The *Scalpel* describes the ceremony organized by the "Médicale," the insurance society founded by the profession in Belgium, in honor of the completion of its first million of policies paid in. This society is financed by physicians, managed by physicians, and all the profits remain in the profession. It was founded several years ago and has made steady gains.

Cancer in Italy.—Professor Foà stated not long before his death that at the necropsies during his experience at Turin, cancer had been found in one in every twenty-four cadavers during the first twenty-four years, but during the last few years cancer was found in one of every twelve cadavers. At Genoa and Padua, the proportion has been one in eleven, at Pisa one in fifteen, and at Milan one in twelve.

Swedish Prize to Be Awarded to Fåhræus. — Among the twenty-nine works offered in competition for the jubilee prize of the Swedish Medical Association, Dr. R. Fåhræus' report on the speed of sedimentation of erythrocytes, entitled "The Suspension Stability of the Blood," was selected as the work of the greatest interest to the greatest number. The Lennmalm prize is to be awarded to Dr. Sven Ingvar for his series of works on the cerebellum.

Alienists and Neurologists' Congress in 1924.—The twenty-eighth Congrès des médecins aliénistes et neurologistes of France and French-speaking countries is to be held at Brussels in August, 1924, with Professors Glorieux of Brussels and de Massary of Paris presiding. The secretary is Prof. A. Ley of Brussels. The questions appointed for discussion are "Mental Debility in Children"; "How to Study Disturbances in Speech," and "Adaptation of the Mentally Diseased to Their Environment."

The Domus Medica at Copenhagen.—The profession has now its own home in Denmark. A large mansion has been remodeled for the headquarters and club of the Danish Medical Association and the Copenhagen Medical Society. On Thursday afternoons and evenings the latter with its guests has the exclusive right to the assembly rooms. The upper story is arranged for a hotel for members. The Domus Medica, as it is called, was inaugurated recently as the realization of a long cherished ideal.

The Medical Salon at Paris.—The *Paris médical* states th[illegible] the fourth *Salon des médecins* is to open Marc[illegible] 4. T former ones were held in 1909, 1911 and 1912. This Salon is to include painting, sculpture and the decorative arts, and is exclusively for physicians and pharmacists and their families. Besides original works, articles from collections are to be exhibited, medals, portraits and ex libris connected with them. Our exchange adds that cartoonists have been invited to exhibit works dealing in any way with medicine or the profession. There is to be a section devoted to artistic mediconharmaceutic advertising, domestic and foreign. Dr. Paul Rabier, 84 rue Lecourbe, Paris, is secretary.

Conference of Cremation Authorities.—At a conference at Liverpool, October 25, under the auspices of the Cremation Society of England, propaganda advocating cremation was discussed in the way of advertising, encouraging the public to visit crematories, lectures, and obtaining signatures to the form "requesting cremation at death." A letter from the International Conference on Cremation, held at Gothenburg in August and September, suggested that a representative cremation exhibition be given at the exposition to be held in London in 1924, similar to those given at Maleno in 1914 and at Gothenburg this year; and that the sixth World Conference for Cremation should take place in London in 1924. The Cremation Society of England distributed 60,000 books and leaflets during the last year.

Society News.—The fourth congress of the Surgical Society of Central Germany was held at Brunswick, November 11. Prof. Felix Franke spoke on "Surgical Treatment of Epilepsy" and Professor Wrede on "Surgical Treatment of Hydrocephalus."——At a joint conference between the National Council for Combating Venereal Disease and the Society for the Prevention of Venereal Disease, in London, October 30, fusion of the two societies was advocated.——At the first meeting of the Ulster (Ireland) Medical Society for the session, October 25, at Belfast, Mr. R. J. Johnstone, M.P., F.R.C.S., introduced the incoming president, Dr. W. St. C. Symmers, professor of pathology at Queen's University, Belfast, who gave an address on "Melanosis Derived from the Eye."

Personal.—Sir Jagadis Bose, director of the Bose Institute, Calcutta, India, delivered a lecture before the Royal Society of Medicine in London, December 6.——Prof. D. C. Winkler of the Psychiatric-Neurological Clinic, Utrecht, delivered a lecture before the Medico-Psychological Association of Great Britain and Ireland, November 22.——Professor and Senator E. Maragliano, Genoa, has been given an honorary degree by the University of Lyons. This is said to be the first time that an Italian has been thus honored by a French university.——The Bréant prize has been awarded by the Académie des sciences, at Paris, to Drs. Sazerac and Levaditi, of the Pasteur Institute, for introducing bismuth into the treatment of syphilis.——The tribute to Prof. Leonardo Bianchi on the occasion of his last lecture was imposing. The neurologists and alienists of Italy, and representatives of the government and of scientific societies came to join in a tribute. Bianchi retires at the age of 75, both from the chair and the clinic of nervous and mental disease.——Dr. G. Heuyer, 74, boul. Raspail, Paris, is in charge of the collection for presenting a souvenir to Dr. Prosper Merklen as he leaves Paris to take the chair of medicine at Strasbourg.

Deaths in Other Countries

Dr. E. Meyer, dean of the medical faculty at Nancy, professor of physiology.——Col. James Lane Notter, M.D., professor of hygiene, Army Medical School, Netley, England; British delegate to the International Medical Congress at Chicago in 1893; formerly examiner in public health at the universities of Leeds, Cambridge, Liverpool, Manchester and Wales and for the Conjoint Board of the Royal Colleges of England; president of the Epidemiological Society, and author of works on public health; died, October 24, at Southampton, aged 80.——Dr. David White Finlay, emeritus professor of medicine and dean at Aberdeen (Scotland) University, November 4, aged 83.——Dr. Wallace Beatty, honorary professor of dermatology at the University of Dublin, Ireland, aged 69.——Dr. Peter W. Lathan, formerly Downing professor of medicine at the University of Cambridge, England, aged 91.——Dr. Thomas Henry Green, consulting physician to the Charing Cross and Brompton hospitals, London, and author of the well known manual on pathology, November 5, aged 85.——Dr. V. Fisichella, professor of dermatology and syphilology, at Catania.——Dr. F. Frank, emeritus professor of obstetrics, at Cologne, aged 67.——Dr. Victor Surbek, Berne, chief of staff of one of the largest hospitals in Switzerland, president of the medical licensing board and also of the board in charge of asylums for the insane, aged 70.

Government Services

New Regulations for Reserve Corps

The new regulations governing appointment and promotion in the Officers Reserve Corps of the medical department have been made public by the Adjutant General of the army. These regulations permit physicians, with or without previous military service, who are graduates of recognized medical schools, to enter the Medical Reserve Corps. Eligibility for promotion is based entirely on length of service. Examination, other than physical, may be waived for all grades, with the exception of promotion from the grade of major to that of lieutenant colonel.

A study of the regulations shows that the War Department has arranged the scope of the one professional examination so that a candidate may be examined in the line of special endeavor for which his services would be desired. For original appointees, no other examination, aside from the physical one, is required.

These regulations have been formulated after careful and thorough consideration, and are believed by officials of the War Department to form just and equitable standards for determining the rank of former service men in reentering the Medical Reserve Corps.

The new regulations are set out in a general letter dated Nov. 17, 1923, from the Adjutant General of the army, and a supplement from the Surgeon General of the army fixing the scope of the examination for promotion to the grade of lieutenant colonel. The regulations and the Surgeon General's supplement follows:

APPOINTMENT

Of Persons Without Prior Commissioned Service.—1. Original appointments in the medical, dental and veterinary sections of the Officers' Reserve Corps will be made in the lowest grade without examination of: (*a*) Graduates of medical, dental and veterinary schools who have completed successfully the R. O. T. C. courses and who have been recommended by the professor of military science and tactics. (*b*) Graduates of recognized medical, dental and veterinary schools who have passed the national or state board examinations necessary to qualify them to practice medicine or surgery.

2. Original appointment in the medical administrative and sanitary sections of the Officers' Reserve Corps may be made as follows:

(*a*) Second Lieutenants: Applicants under 31 years of age who have had more than two and less than five years' experience in the army, or in civil life in duties analogous to the medical service of the army.

(*b*) First Lieutenants: (1) Applicants under 31 years of age who have had more than five years' and less than ten years' experience in the army or in civil life in duties analogous to the medical service of the army. (2) Applicants over 31 years of age who have had more than two years' experience in the army, or in civil life in duties analogous to the medical service of the army.

(*c*) Captains: (1) Applicants who have had more than ten years' experience in the army, or in civil life in duties analogous to the medical service of the army. (2) Applicants over 36 years of age who have had more than five years' experience in the army, or in civil life in duties analogous to the medical service of the army.

3. Original appointments in all sections of the medical department in higher grades may be made in the grades which their records of professional attainments warrant in cases of:

(*a*) Those who have a record of service during the World War which, while not in the military establishment, contributed to the successful prosecution of the war, such as service on the Council of National Defense, long service as an examiner of officer candidates or men of the draft, as members of draft or advisory boards, former officers of the navy and allied armies, and

(*b*) Those of eminent general or special qualifications barred from appointment during the World War by circumstances connected with the maintenance of essential public institutions, such as service as essential teachers, public health and other public administrative officers. Candidates falling under the foregoing exceptional circumstances may be appointed in a grade commensurate with their age and standing in civil life.

Of Former Officers.—The following requirements determine the grade for which former officers are eligible for appointment:

1. Second Lieutenants: Those officers who served satisfactorily on active duty as Second Lieutenant for less than six months.

2. First Lieutenants: (*a*) Those officers who served satisfactorily on active duty in the grade of second lieutenant for more than six months. (*b*) Those officers under 31 years of age who served satisfactorily on active duty in the grade of first lieutenant for less than six months.

3. Captains: (*a*) Those officers who served satisfactorily on active duty in the grade of first lieutenant for more than six months. (*b*) Those officers over 31 years of age who served satisfactorily on active duty in the grade of first lieutenant for less than six months. (*c*) Those officers who served satisfactorily on active duty in the grade of captain for less than six months.

4. Majors: (*a*) Those officers who served satisfactorily on active duty for at least one year, held the grade of captain for at least three months, and whose records indicate that they possess the necessary qualifications

for field grade. (*b*) Those officers not otherwise provided for, holding the grade of major at time of discharge.

5. Lieutenant Colonels: (*a*) Those officers who served satisfactorily on active duty for at least one year, held the grade of major for at least three months, and whose records indicate that they possess the necessary qualifications for the higher grade. (*b*) Those officers not otherwise provided for, holding the grade of lieutenant colonel at time of discharge.

6. Colonels: (*a*) Those officers who served satisfactorily on active duty for at least one year, held the grade of lieutenant colonel for at least six months, and whose records indicate that they possess the necessary qualifications for the higher grade. (*b*) Those officers who served satisfactorily on active duty in the grade of colonel.

PROMOTION

For the Medical and Dental Officers' Reserve Corps.—To the grade of captain on completion of five years in the grade of first lieutenant.

To the grade of major on completion of five years as captain.

To the grade of lieutenant colonel on completion of five years as major.

To the grade of colonel on completion of five years as lieutenant colonel.

For the Medical Administrative Officers' Reserve Corps.—To the grade of first lieutenant on completion of five years as second lieutenant.

To the grade of captain on completion of five years as first lieutenant.

GENERAL INSTRUCTIONS

1. The time necessary for promotion will be counted from date of appointment as regards current appointment. Commissioned service in grade from which promotion is sought, or any higher grade, prior to current appointment, will be computed and credited as provided for in Par. 150, S. R. 43, W. D., 1921. In computing inactive service in the Officers' Reserve Corps prior to current appointment, credit will be given only from date of acceptance.

2. For promotion to the grade of lieutenant colonel, the examination, the scope of which will be prescribed by the surgeon general, shall be such as to demonstrate the applicant's capacity to perform the duties and assume the responsibilities of the grade and class of service sought.

3. For all other grades, no examination other than physical will be required when in the opinion of the board the civil or military experience of the candidate justifies belief in his qualifications for the grade and class of service sought.

4. It will be noted that a reserve officer covered in these instructions, if he has had no commissioned service in his present or any higher grade prior to his current appointment, will become eligible for promotion on the day his current appointment expires, except for promotion to first lieutenant and captain in the Veterinary Officers' Reserve Corps and Sanitary Officers' Reserve Corps. In order to avoid a duplication of work, it is desired that reserve officers covered in these instructions be examined within a reasonable time prior to the date on which they become eligible for promotion and that the board report, with the corps area or department commander's recommendation be transmitted to this office so as to reach here prior to the date on which the officer becomes eligible for promotion. In that class of cases in which the reserve officer becomes eligible for promotion on the day his current appointment expires, it is desired that the board's report and recommendation be forwarded so as to reach the Adjutant General's Office forty-five days before the date of expiration of current commission.

SUPPLEMENT BY SURGEON GENERAL

SCOPE OF EXAMINATION FOR PROMOTION TO LIEUTENANT COLONEL IN ALL SECTIONS OF MEDICAL DEPARTMENT RESERVE CORPS

I. *For All Applicants.*—1. Organization and major functions of: (*a*) Army of the United States. (*b*) Component units of the combined arms. (*c*) Medical Department units of the army.

2. Principles of military discipline and military command.

II. *For Command—Administrative.*—1. Organization and technic of operation of divisional units of the medical department.

2. Hygiene and sanitation of large commands.

3. Scheme of military hospitalization: (*a*) Divisional. (*b*) Communication zone.

4. Scheme of military evacuation: (*a*) Divisional. (*b*) Corps. (*c*) Army.

5. Solution of a problem involving knowledge of administration of major medical department units in war."

III. *For Sanitation.*—1. Organization and technic of operation of divisional units of the medical department.

2. Hygiene and sanitation of large commands.

3. Solution of a problem involving application of the knowledge of the special field of sanitation of applicant to a major problem of army sanitation under war conditions.

IV. *For Supply—Administrative.*—1. Scheme of military hospitalization: (*a*) Divisional. (*b*) Communication zone.

2. Scheme of military evacuation: (*a*) Divisional. (*b*) Corps. (*c*) Army.

3. Solution of a problem involving knowledge of principles of procurement, storage and issue of medical department supplies for major military situation.

V. *For Professional or Technical Services,* including consultants, chiefs of professional services and other officers whose functions are chiefly in a professional or technical nonmilitary relation.—1. Scheme of military hospitalization: (*a*) Divisional. (*b*) Communication zone.

2. Scheme of military evacuation: (*a*) Divisional. (*b*) Corps. (*c*) Army.

3. Solution of a problem pertaining to the special service in which the candidate is technically qualified.

All applicants will be examined in Section I and in the additional subjects of one of the Sections II, II, IV or V which particularly applies to the special duties for which the applicant is intended in a military unit.

Since this is the only examination required for promotion to higher grades in the medical department reserve, it is intended that it shall be searching and exhaustive with the view to demonstrate conclusively the capacity of the officer to act independently in the organization and operation of units for which the grade and specific duty calls.

Public Health Service to Investigate Officers' Credentials

Surg.-Gen. Hugh S. Cumming of the U. S. Public Health Service, according to reports from Washington, D. C., has ordered an investigation of the record of every physician in the service to determine whether any are holders of bogus diplomas or are without proper medical qualifications. This inquiry was instigated when it was learned that Dr. Fred Harrison Works, passed assistant surgeon at the U. S. Veterans' Hospital, Roxbury, Mass., had received a diploma from the Eastern University School of Medicine of Baltimore without, it is alleged, proper qualifications, and following reports that many fake physicians were treating ex-service men, as in the case of Albert Hoody, an ex-service man who died, it is reported, under an anesthetic administered by "Dr." George Sutcliffe, Unionville, Conn.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 19, 1923.

Settlement of the Panel Question

The special conference of representatives of the local medical and panel committees called by the Insurance Acts Committee of the British Medical Association, as anticipated in my last letter, has accepted the terms there given as offered by the minister of health. These terms are regarded as equivalent to nearly all that has been demanded by the profession. After a certain amount of argument a vote was taken, and the offer was accepted by a majority of 141 votes against 29. A debate then took place as to which of the alternatives offered by the minister should be accepted. These are a capitation fee of $2 for five years, and a court of inquiry to determine the terms. A motion in favor of the latter was carried by 123 votes to 49.

The London School of Dermatology

The lack of centralized teaching of the various special branches into which medicine is divided, such as can be obtained in Berlin or Vienna, where the work of the leaders of the day can be followed, is a long standing complaint of those who come to London for postgraduate study. The twelve medical schools are scattered over the metropolis and are as independent of one another as if they were hundreds of miles apart. The various special hospitals are equally independent of one another and only increase the difficulty. So far, the only subjects that have a single hospital sufficiently preeminent to be regarded as the school of the metropolis are neurology (at Queen's Square) and ophthalmology (at City Road). Now dermatology has been added to the list. St. John's Hospital for Skin Diseases, Leicester Square, has been organized as a central school of dermatology, in which the teachers comprise not only the staff but also the heads of the dermatologic departments of the twelve London medical schools. The staff of the hospital has been augmented by the election to the consulting staff of Sir Malcolm Morris and Dr. J. H. Stowers, and of Dr. Wilfrid Fox and Dr. Henry MacCormac to the visiting staff. Dr. J. M. H. Macleod has been appointed director of the pathologic department. A program of lectures for the first six months of the present medical session has been drawn up. It is felt that this step will lead to a great improvement in the position of London as a teaching center in dermatology. Visitors to this country have often complained of the time they had to spend in goin from one hospital to another, whereas in Paris [illegible] ienna [illegible] could obtain continuous instruction at one [illegible] lin

Vital Statistics: Decline in the Birth Rate

The registrar-general's statistical review of England and Wales for 1922, which has just been published, shows the lowest birth rate recorded in any year, save the war years 1917-1919; the lowest death rate, except in 1920 and 1921, and the lowest infant mortality ever recorded.

BIRTHS

Births numbered 780,124, equivalent to a rate of 20.4 per thousand living, and were fewer by 68,690 than in 1921. Excluding the three years mentioned, we have to go back as far as 1869 to find a year in which the births reached so low a figure, and at that date the population was only 22,000,000, against 38,000,000 in the year under review. Before the war, the male births were in proportion of 1,038 to 1,000 female births. From 1916 onward, however, the plurality of males showed a decided increase, the average for the five years from 1916 to 1920 being as high as 1,051, at which figure it remained in 1921. Last year the proportion fell slightly, to 1,049, but it is still, as will be seen, considerably in excess of the prewar figure. The proportion of illegitimate to total births fell slightly, from 45 per thousand in 1921 to 44 in 1922.

DEATHS

Deaths numbered 486,229, equivalent to a rate of 12.8 per thousand living, and were 27,600 more than in 1921, when the lowest death rate (12.1) was recorded. If the population is standardized to the sex and age constitution of 1901, the rate is reduced to 11.9. As usual, the male deaths exceeded the female; the numbers were: males, 246,670; females, 239,559, so that the ratio of deaths was 1,029 males to 1,000 females. As, however, there is a large excess of females over males in our population, this ratio does not give a true idea of the proportion of male to female deaths in terms of equal numbers. The death rate for males was 13.6 per thousand living, that for females 12.0. A notable feature of the death rates (standardized) is that for ages 0-5 and 5-10 years the rates are the lowest ever recorded—that for 0-5 being 1.6 and that for 5-10 being 0.2 per thousand living at those ages below the record of the year 1921. For ages 10-15 the rate remained unchanged, but from that point onward the rates show increases over 1921, growing more pronounced at the higher ages. Indeed, the rate at ages over 85 is in excess of any since 1915. The most important cause of the rise in the death rate over that of 1921 was influenza, which claimed 21,498 victims, as against only 8,995 in the preceding year. Thus, this one disease alone was responsible for nearly half the increase in deaths recorded. Diseases of the heart caused 59,837 deaths, an increase of 6,127 over the number for 1921; bronchitis claimed 40,912 victims, as compared with 33,684 in 1921, and pneumonia 40,930, as compared with 34,708.

INFANT MORTALITY

With an infant mortality rate of 77 per thousand births, 1922 beat all records, the lowest rate heretofore recorded being 80 in 1920. The progress made in the saving of infant life is shown by going back only to the beginning of the present century. In 1901 the rate was 151, nearly double that of 1922. How important this saving of infant life is, in view of the declining birth rate, may be appreciated from the fact that, while in 1901 the births were nearly 150,000 more than in 1922, the survivors in the latter year were only 60,000 fewer. Thus, by the improvement in our infant death rate, more than half the decline in the numbers of births has been made up. The number of deaths of infants under 1 year of age in 1922 was 60,121; had the infant mortality rate been equal to that of 1901, the number would have been nearly 118,000.

Commercial Influences in Therapeutics

Dr. A. J. Clark, professor of pharmacology, University College, London, on taking the chair as president of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine, delivered an address on commercial influences in therapeutics. He criticized the light-hearted manner in which certain firms made sweeping therapeutic claims for their products, for which there was little or no evidence. When evidence had been laboriously collected showing that these claims were erroneous, it usually made no difference in the advertisements. On inquiry, he found that there are no safeguards in England against claims made in advertisements that are demonstrably false. It was estimated in 1913 that more than $20,000,000 was spent on secret remedies and that the trade spent half of this on advertisements. Dr. Clark pointed out that it was impossible to draw the line where blatant frauds advertised in the lay press ended and proprietary preparations of high therapeutic value began, as every possible intermediate grade existed. It might be said that secret remedies required no discussion, because the professional tradition was that a physician should not recommend a remedy of whose composition he was ignorant. But a secret remedy only showed a lack of ingenuity on the part of the manufacturer, as nothing was simpler than to give a formula and to claim that one of the ingredients was obtainable only by the manufacturer, or that the value of the remedy depended on the exquisite skill of preparation. He gave as an example an alleged remedy for tuberculosis sold by C. H. Stevens under the name of "Sacco" and "Lungsava." Stevens said that this contained the root of "Umckaloabo," an African plant. But careful inquiry by the British Medical Association expert in South Africa failed to reveal the existence of such a plant, and analysis of the preparation showed that it was essentially a mixture of wine and glycerol. An action by Stevens against the British Medical Association failed. In 1915 this "cure" appeared in the United States as the "U. P. Extract" exploited by the Umckaloabo Chemical Company of New York City. During the past three years, strange to say, articles have appeared in the well known *Revue médical de la Suisse romande* by a Dr. Sechehaye, stating that he has treated numerous cases of tuberculosis with Umckaloabo and found it a specific. Reprints of these articles have been broadcast to the profession in this country. So far this action of a leading Swiss journal in publishing the articles has excited no comment in our medical press. Dr. Clark pointed out that the fact that an article was advertised only to the medical profession was no guarantee whatever, and quoted Dr. G. H. Simmons on this point (The Journal, May 18, 1907, p. 1645). He commended the work of the Council on Pharmacy and Chemistry of the American Medical Association as affording the American physician complete protection against worthless preparations.

A Stimulus Necessary for Growth

Dr. F. Gowland Hopkins, F.R.S., the discoverer of vitamins, has been presented with the gold medal of the Royal Society of Medicine. In connection with the presentation, he discussed some of the mysteries of growth. Growth, he said, was the predominant attribute of life, and though little was known of its inner meaning, there were a number of points connected with it of practical importance. He was of opinion that, like the contraction of muscle, it occurred only in response to a stimulus. There was, for instance, the stimulus of the pituitary secretion, and if this was overactive, gigantism resulted. Lower organisms, such as yeasts, grew vigorously and normally as the result of a special stimulus, and the same thing occurred with bacteria. The behavior of protozoa was peculiar. A single individual would not multiply unless the medium in which it was grown was of very small bulk. But if a pair of protozoa were placed in the medium, they multiplied, not twice as fast but twenty times as fast. Mutiplication was solely by division, and each individual, while dividing, secreted into the medium a material that stimulated growth. Consequently, if two individuals were present, they stimulated each other. In recent years the cultivation of living animal tissues outside the body had become much more common. It had been found that they, too, would grow only if there was some substance in the medium to act as a stimulus. Lastly, the work on vitamins had shown that some external matter was necessary for growth. In every case the amount required was infinitesimal. He considered that these facts had an important bearing on the study of certain diseases, which should be studied from the standpoint of biochemistry.

PARIS

(From Our Regular Correspondent)

Nov. 16, 1923.

Weak Points in Medical Education

Under the caption "Weak Points in Medical Education," the *Journal des praticiens* publishes an editorial in which it points out, among other weaknesses, the abnormal position of the chair of history of medicine at the Faculté de médecine of Paris. This chair is generally delegated to the professor last promoted, who loses no time in giving it up as soon as he can obtain another chair that has more practical interest. Yet, nothing is more instructive than the history of medicine. It affords the professor an opportunity of making incursions into the widest realms of thought, and the *Journal des praticiens* would seem to be justified in its contention that the chair of history of medicine, instead of being entrusted to the youngest professor, should be regarded as the crowning honor of a long professional career. Long life, mature reflection and an opportunity to witness the overthrow of many doctrines are needed to permit appreciation of the significance of the past.

The history of medicine teaches modesty, and, if it taught nothing else, it would deserve a place in the curriculum. The ancients appear to have imagined that their scientific speculations were deciding problems for all time to come and at times it seems as if we moderns shared the same delusion. How many of the conceptions of today will be accepted tomorrow? With improved technic, doubt may be cast on doctrines that seemed the best established. What greater progress might have been made in medicine if the leaders had not been too confident of their knowledge. Entirely different horizons would have opened to them if they had not been permeated with the belief that these horizons did not exist since they had not discovered them, and that it was madness to suppose that others would reach shores whose existence they did not even suspect.

Employment for Crippled and Disabled Soldiers

M. Albert Peyronnet, minister of labor, has been conducting an inquiry into the conditions under which war pensioners are working in the various industrial and commercial establishments. The inquiry covered more than 4,500 large establishments employing 1,527,000 workmen, 935,000 being adult men. There were, in all, 47,500 pensioners working in these establishments, 16,000 of whom were employed by the same firms as before the war.

The proportion of war pensioners to the total number of employees in a given establishment varied greatly, depending on the character of the industry. The percentage is high in establishments in which the number of office workers and supervisors is relatively large (commercial establishments, shipping firms, financial institutions and insurance companies). In the metal industries, out of 550,000 workmen and employees, there were 18,500 pensioners, or more than one third of the total number of pensioners registered by the inquiry. Among these were 1,500 who had suffered amputations of various kinds, 586 having lost a leg; 6,800 had suffered wounds of the extremities; 890 had received eye injuries; 3,000 had suffered other wounds, and 4,400 were ill, 2,500 having affections of the respiratory organs.

This inquiry reveals the fact that pensioners who, owing to wounds or disease, found their handicap too great to justify continuance in the work in which they were engaged before the war, have, for the most part, changed their trade or profession, or have at least taken up a different branch of work. The crippled and disabled soldiers, particularly those who have lost a limb—especially an arm—have selected office work or supervising jobs. More than four fifths of the pensioners employed at present as foremen, warehousemen, watchmen and inspectors were engaged in other work before the war. Cases in which former factory workmen have become inspectors or foremen have been especially frequent. Factory workmen who have been able to continue in the same line of work in which they were engaged before the war have often received special training in order to minimize their disability.

Most manufacturers who were consulted held that the output of the war pensioners was essentially the same as that of workmen who are sound. In three fourths of the cases investigated, the output or productivity of the pensioners was normal; in scarcely 10 per cent. was it reduced more than 25 per cent.

Chimpanzees in French West Africa Reserved for Scientific Research

In order to preserve for laboratory use the chimpanzee, which was captured in too large numbers by fur hunters, the governor general of French West Africa has issued an order prohibiting the capture, detention, sale or exportation of living chimpanzees throughout his territorial jurisdiction. Special permits to capture, hold in captivity and to export these anthropoids for scientific purposes may be secured by scientists, medical investigators or other qualified persons. These permits are made out to individuals and are nontransferable. They remain in force for a limited time, and the number of chimpanzees that may be captured is definitely stated. The hunters may be accompanied by native guides, but the animals may be captured only with nets or traps; no methods may be employed that will wound them.

International Cooperation in Intellectual Work

The national committees on international cooperation in intellectual work, which have now been appointed in seventeen countries of Europe, have been invited to send delegates to the next meeting of the International Committee on Intellectual Cooperation, which has been organized by the League of Nations and is to be held at Paris, Nov. 28, 1923. These national committees are to serve as correspondents and collaborators to the international committee in encouraging and facilitating intellectual cooperation among the nations.

Since the last meeting of the League of Nations, national committees have been created or are in process of formation in Belgium, France, Latvia, Norway, the Netherlands and Switzerland. Similar committees were already in existence in Austria, Bulgaria, Esthonia, Finland, Greece, Hungary, Lithuania, Poland, Roumania, Czechoslovakia, and in the kingdom of the Serbs, Croatians and Slovenians.

New Regulations Governing the Shipment of Milk

With a view to prevent the alteration of milk during transport, the prefect of police of Paris has issued an order requiring that milk consigned to wholesale or retail dealers, or to establishments supplied directly by wholesale milk dealers (municipal shelters, hospitals, etc.), must be shipped in sealed containers. No transferring of the contents of the vessels en route is permitted, either on the trains or in the t[illegible]s.

PRAGUE

(From Our Regular Correspondent)

Nov. 3, 1923.

Czechoslovak Watering Places

The ministry of health made public the data on the number of visitors to the Czechoslovak watering places during the season of 1923. The total number was 96,360, as compared with 68,709 for the previous year. This increase is largely due to the influx of Czechoslovak guests; the number of foreign guests shows a decrease. There were 3,200 guests at Franzensbad, with 710 foreigners; 29,036 persons visited Karlsbad this year, as compared with 26,104 last year, and of these 15,588 were from foreign countries. Marienbad shows also a considerable increase, with 15,023 guests this year, including 7,737 foreigners. These data reflect clearly the situation in the Czechoslovak watering places at the present time and show that, while the country has returned to normal prewar conditions, political and economic conditions in most of the surrounding countries has discouraged many foreigners from visiting the watering places.

Congress of Surgery and Gynecology

The second congress of the Czechoslovak Society of Surgery and Gynecology was held in Prague from September 28 to October 3, under the presidency of Dr. O. Kukula, professor of surgery at the Prague medical school, who also read a paper on the surgical treatment of gastric ulcers. About 150 papers were presented in the different sections of the congress. Special sections were devoted to the question of the surgical treatment of tuberculosis, to puerperal septicemia and to the treatment of inflammatory conditions of the ovaries. The congress was also attended by a group of Jugoslav physicians.

Old Age and Sickness Insurance

The Czechoslovak parliament, which opened its fall session, October 30, included in its program a bill providing for old age and sickness insurance that has been in preparation since the beginning of the current year. The present coalition government has agreed that the law shall be enacted at the beginning of next year. In the original outline of the bill it was planned to set aside annually a certain sum of money for the prevention of disease among the insured, but it was not specified how this money should be used. Recently an open letter was addressed to the parliamentary committee that is working on the bill, which was signed by many prominent workers in social hygiene and public health; in this letter a definite plan was suggested for the disbursement of the appropriations for preventive work. According to this plan, health centers, dispensaries and allied institutions, such as preventoriums and summer camps for children, which have been created mostly by private organizations with the help of the public health service, should be used to benefit the insured, and these institutions should receive annual grants for maintenance from the insurance service. There is no question that, if this scheme can be realized, there will be an enormous saving of funds; heretofore the insurance institutions and the general welfare institutions have been operated independently. It is generally assumed that the parliamentary committee will seriously consider the plan proposed, because the document is signed by some influential politicians and even by members of the committee itself.

Health Budget

The budget for the year 1924 was submitted to the same session of the Czechoslovak parliament. The total state expenditures in the proposed budget were cut down from twenty to seventeen milliards of Czechoslovak crowns (approximately $600,000,000). The appropriation for the ministry of health amounts to 159,842,893 Czechoslovak crowns (about $5,000,000). This means that the state appropriation for health purposes is 33 American cents per capita. The appropriation for the last year was 207 million crowns (about $6,210,000). On the other hand, the general decline in prices, which began in 1922 and is still continuing, will partly compensate for the loss which the public health service suffers by the reduction of its appropriations.

Radium Production

The state institute for the production of radium, in Jáchymov Bohemia, is undergoing important reorganization as to the methods of extraction employed. The institute was purchased by the state in 1922. Jáchymov is one of the most important sources of radium in the world market. Of the total amount of 204 gm. of radium now available in the world, 24 gm., or 12 per cent., was produced in Jáchymov. The yearly output of the Jáchymov institute before the reorganization ranged from 2.2 to 3.3 gm. of radium. It is hoped that the new methods will greatly increase production. In connection with the institute, the state acquired also a hotel and sanatorium for patients undergoing radium therapy in Jáchymov.

BELGIUM

(From Our Regular Correspondent)

Oct. 25, 1923.

School of Puericulture

Under the direction of a committee of physicians, a school of puericulture has been established at Brussels to give instruction in the hygienic care of young children. The school is planned more particularly for persons whose duties are concerned with the training of children, such as school teachers, supervisors of crèches, midwives, mothers with children, and young women. The courses cover a period of two years, at the conclusion of which final examinations are held. After the second year, during which short periods are spent in children's hospitals, crèches and consultation services on infant care, a diploma as a "maternal assistant," is given, which is indorsed by the government.

Antityphoid Vaccination

Before the Société belge de biologie, Drs. Van Boeckel and Geens presented recently a practical discussion of antityphoid vaccination. The number of injections necessary to produce good immunity must be established definitely before reliance is placed on any form of vaccination. The authors have verified in man the observations of Maisin on animals; namely, that a subject who receives divided injections of typhoid bacilli produces more antibodies than one who receives the same quantity of bacilli at one injection. Therefore, when it is important to establish a prolonged immunity of high degree—in soldiers, physicians and nurses, for example—it is best to vaccinate with three or four doses. When, on the other hand, it is desired to secure immunity rapidly, the vaccine should be given in one or two injections. The latter method will be employed also in persons who refuse a larger number of injections.

Device for Calculating Diets

An interesting communication was presented recently by Dr. Gallemaerts before the Société clinique des hôpitaux of Brussels. The selection of a diabetic dietary requires careful computation. Gallemaerts secured from a mathematician (Professor De Buyl) a device with which to perform the calculations. With this instrument one can determine rapidly the quantities of carbohydrates, proteins and fats necessary to secure the requisite number of calories. Then with the aid of calory tables and this device it is possible to select the foodstuffs best adapted to furnish a sufficiently varied and a quantitatively correct regimen. This medical application of mathematical procedures is clinically practical. Graphs can be prepared of the different regimens to which the patient is subjected, and present in an objective manner the relation between certain dietaries and the appearance of various symptoms.

An Appointment

Prof. Carlos Chagas, director of the Institut Osvaldo Cruz in Rio de Janeiro, has been appointed foreign correspondent of the Royal Academy of Medicine in Belgium.

Automobile Ambulances

A number of physicians have formed in Brussels a joint-stock company, with a view to operating a line of automobile ambulances. This service is meeting with great success and is heartily supported by physicians and directors of hospitals, because the special equipment of the vehicles assures easy transportation of patients. The company plans, in accordance with the terms of its franchise, to establish a similar transport service in other large cities and industrial centers, favoring medical groups whenever feasible.

The Pathogenic Flora of the Intestine

In connection with the publication of the researches of Lomry and Gillet, Gengou recently presented to the Royal Academy of Medicine a communication on the identification of pathogenic bacilli in the intestine. This method of identification affords an opportunity of differentiating the various strains of paratyphoid bacilli; more particularly, paratyphoid B. In comparison with typhoid strains, the latter show a higher degree of uniformity. Paratyphoid B bacilli may be divided into three groups: paratyphoid B 1, a homogeneous strain, the ordinary type described by Schottmüller; paratyphoid B 2, a collection of less homogeneous strains, for the most part flagellate bacilli, the Aertrycke group of Van Ermengen, which is closely allied to paratyphoid B 1 and is quite distinct from paratyphoid B 3; paratyphoid B 3, a strain equally homogeneous and uniform as paratyphoid B 1 and resembling the type described by Gärtner; it is a flagellate bacillus like the strain paratyphoid B 2.

Lomry and Gillet claim to have shown that from the point of view of agglutinations there is just as much heterology between the types of paratyphoid B as there is between the various species of dothienenteric bacilli: typhoid bacilli and paratyphoid A and B bacilli. Since fermentation of sugars lies at the base of the differentiation in the species of pathogenic bacilli in the intestine, agglutination, as controlled by the Castellani test, is an efficient means of determining the different species.

HOLLAND

(From Our Regular Correspondent)

Oct. 26, 1923.

Campaign Against Tuberculosis

In a previous letter (THE JOURNAL, April 7, 1923, p. 1020), I referred to the activities of the government commission for the prevention of tuberculosis. This commission, which was appointed in July, 1918, to advise the government in regard to legislative and other means of combating the spread of tuberculosis, has just completed its investigations. Certain points are worthy of note, especially in connection with compulsory notification, and treatment in dispensaries.

A campaign for the prevention of tuberculosis should aim not only to diminish the causes of infection (direct measures) but also to increase the resistance of patients (treatment) and of healthy subjects (indirect measures). In addition, measures of a general nature should be employed. More particularly, students should be instructed on tuberculosis and its prevention. Physicians in practice should be made familiar with organizations and means for prevention now available. The question of compulsory notification has been much debated, and the balance of opinion favors "compulsory notification of cases with clinical symptoms"; but it is held that "this cannot be introduced until provisions are made for thorough treatment and compensation for loss of income." The dispensary, or "bureau of consultation," should be the center or clearing house of the local campaign against tuberculosis—the place where everything that the patient needs may be secured. It is on the firing line and is the essential executive body. Closest relations must be maintained between practitioners and the dispensary.

Congress of Hygiene

The Netherlandic Congress of Hygiene has just met in Amsterdam under the presidency of Dr. Josephus Jitta, who, in his opening address, reviewed the immense progress that had been made in Holland in matters of public health. He referred especially to the results accomplished during the last twenty-five years, a summary of which was published in the memorial to the queen on the occasion of the twenty-fifth anniversary of her coronation. During the period from 1898 to 1923, the mortality rate has dropped from 17 to 11.43; the infant mortality rate from 15.6 to 6.3. These figures speak eloquently of progress, as do similar figures concerning infectious diseases, and the organization of social welfare societies.

At the congress, the question of the best method of furnishing large cities with milk, especially the feasibility of establishing a monopoly, communal or municipal, for the distribution and sale of milk, was discussed. Dr. Van Roolte opposed the monopoly, contending that it would not only increase the price to the consumer but also tend to diminish the supply of milk. He held that milk plays only a small part in typhoid infection. Other speakers pointed to the good results secured through the cooperative milk associations and recommended a further extension of the system.

The second question, which had been discussed last year at Haarlem and had been continued without any definite conclusions being reached, concerned the advisability of organizing special aids for promoting social medicine. The feasibility of recruiting a specially trained type of nurses was discussed. Drs. Eykel and Heyermans emphasized the need of organizing special courses of study and special examinations for the various types of nurses (nurses for the care of the sick, psychiatric nurses, nurses for public health service, etc.); but to the majority of those attending the congress such a degree of specialization seemed inopportune.

Typhoid Fever

At the request of the International Commission on Public Health, Dr. Ricardo Jorge has drawn up a preliminary report on typhoid in the various European countries. The statistics for Holland by Dr. Josephus Jitta are comprehensive. During the last thirty years, the morbidity has decreased from 48.2 to 16.0 per hundred thousand inhabitants. There have been, however, several periods of recrudescence; notably in 1898, 1901, 1903, 1904 and, more particularly, in 1918-1919, when the morbidity rate reached 62.5. The mortality rate, following a more regularly falling curve, decreased from 1.5 per 10,000 inhabitants in 1892 to 0.18 in 1922, except for a temporary rise to 0.9 in 1918-1919.

The factors affecting this decrease are, mainly, more exact knowledge concerning the disease and its etiology. During the last thirty years, the quality of the drinking water in almost all parts of the country has been much improved. Supervision of the milk supply has also exerted a favorable influence. Antityphoid vaccination is not compulsory either in the army or among civilians. When an outbreak of typhoid occurs in any community, the health commissioner urges the inhabitan [illegible] ated; he ord [illegible] ds to the work himself, in collaboration with the local physicians. In the army, antityphoid vaccination is performed whenever it is needed, but no one is compelled to submit to the procedure. Several thousand in the army have been vaccinated, usually soldiers who had been exposed to the infection.

BERLIN

(From Our Regular Correspondent)

Nov. 10, 1923.

Changes in the Social Insurance Law

The long expected legislation in support of the social insurance law was promulgated, October 30. The two regulations pertaining to health insurance deal with the relations between the physicians and the health insurance societies or sick benefit associations, which has been, for many years, the subject of much controversy. These new regulations follow essentially the proposals of the joint committee appointed by the physicians and the health insurance societies. They conform, too, closely with the so-called Berlin agreement of Dec. 23, 1913, which was drawn up with the cooperation of the federal bureau of the interior. A new feature consists in the creation of a federal commission to represent the physicians and the health insurance societies, to be composed of five representatives of the physicians, five members appointed by the health insurance societies and three impartial outsiders. The duty of this commission is to draw up rules and regulations to promote amicable relations between the health insurance societies and the physicians. It will deal with such questions as the admission of physicians to the panel, the general agreements between the two parties, capitation fees, regulations to prevent overburdening of any society, protection of weaker societies, and systematic distribution of physicians throughout the cities and the rural districts. Provincial committees may be formed to supplement locally the regulations of the federal commission. The existing provisions for the settlement of misunderstandings and for the arbitration of more serious difficulties will be further developed. For each administrative insurance district a subcommission is to be created in the same manner as the federal and the provincial commissions. For every larger administrative district an arbitration board will be created, with the chairman of the district or his representative serving as president, and consisting of two representatives of the physicians, two delegates from the health insurance societies and two impartial outsiders. As the court of last resort, a federal arbitration board will be created. It will decide appeals from the lower arbitration courts in matters of disputes with reference to the panel system in general or the manner of admitting physicians to the panel; departure by the lower arbitration courts from the fundamental principles established by the federal or provincial commissions; or questions with regard to capitation fees.

The most marked changes are found in the regulations pertaining to the benefits to be given by the health insurance societies to the insured. Although, as just stated, the federal commission will adopt such means as seem necessary to protect the health insurance societies against unnecessary and immoderate requests for help, the provision dealing especially with sick benefits states: Physicians who are engaged to care for the members of a health insurance society must refuse to treat applicants when they deem treatment is unnecessary; and when treatment is needed it must be restricted, as far as possible, to essentials, especially as regards the application of special treatments, and the prescribing of medicines and other therapeutic agents; in the performance of their duties, physicians must avoid everything that may give rise to unnecessary or immoderate demands for sick benefits. Important from the panel physician's standpoint is the provision that the executive committee of a health insurance society has the right to call a physician's attention to violations of the regulations, and on repeated violation of the requirements has the right to dispense with his services without further notice, notwithstanding provisions in the contract to the contrary, and may, for the space of two years, prohibit him from serving on the panel. The physician, to be sure, must first be given an opportunity to state his side of the case. Within a month, he may also appeal to an impartial committee of control as provided by law, which renders the final decision, the case not being further justiciable. An appeal, however, does not effect a stay of execution, so it is quite possible for a physician to be wrongfully disciplined and for his means of livelihood to be destroyed before he can show that he is being unjustly treated. A further provision is directed against the unrestricted free choice of physician. If a health insurance society has more than one physician for every 1,350 insured persons (or, in the case of families, for every thousand insured persons), the executive committee of a health insurance society may refuse to admit further physicians to the panel. The principle of free choice of physician is preserved, therefore, only with respect to physicians already on the panel. The health insurance societies may, if they see fit, exclude any or all physicians who may have applied for admission to the panel and who, according to the general agreement, thought they could count on being admitted to the panel within a reasonable time. In order to lessen transportation charges in the case of health insurance societies whose membership is scattered over a wide territory, the executive committee may assign certain districts to certain physicians. When employers have suitable vehicles of their own, they can be called on to furnish a vehicle for a physician summoned to treat their employees. A number of further provisions give the health insurance societies additional rights, over the physicians. In case, through failure to agree, either the health insurance societies or the physicians cancel the contract. In that case, the insured lose their right to demand free medical treatment and are compelled to accept cash benefits instead. The executive committee of a health insurance society may also, contrary to previously existing rules, send an insured person to a hospital for treatment.

Druggists and pharmacists are especially hard hit by the revisions in the law. If, in a given place, a pharmacist granted special rates or prices to a health insurance society, Section 375 of the old law required that any other pharmacists who accepted those rates and prices should be allowed to furnish supplies to the health insurance societies; this provision has been canceled by the new law. Again, in case the pharmacists combine, refuse to extend credit to the health insurance societies, or take other drastic action, these societies may cease to furnish medicines to the insured and may give their members cash benefits instead. The insured are also required by the new law to pay 10 per cent. of the cost of medicines and other therapeutic agents, including cordials. If occasion seems to require it, the executive committee may raise this percentage to 20 per cent. However, on the request of a majority of the insured members committee, such an order must be rescinded. The executive committee may make exceptional rulings in urgent cases and in especially severe affections.

The most sweeping change is the reference to accident insurance contained in Section 1: The federal minister of labor shall have the right, if such action is necessary for the maintenance or carrying out of accident insurance or for the preservation of the working capacity of the insured, (1) to make changes in the constituency of the health insurance societies composed of industrial workers. He may, more particularly, combine one or more such societies or dissolve others; he may exclude certain branches of an industry or, for local reasons, certain portions of such branches, from the constituency of an industrial health insurance society; or (2) he may turn over the field of accident insurance in certain sections to the provincial insurance boards. Certain other provisions aim to simplify methods and thus work toward economy in administration. Other changes concern a new system of controlling accident insurance in industrial plants by the federal government, the several states and the communes.

Whether the new law will accomplish better results than the old, and whether it will put new life into our social insurance administration, can be known only when it has been given a practical trial.

Roentgenographic Study of the Blood Vessels

At the session of the Frankfort Medical Association, held, Oct. 15, 1923, Berberich and Hirsch presented a communication on the roentgenography of living arteries and veins. For this purpose, the temporary arrest of the rapid circulation of the blood stream by means of stasis is required. The best contrast medium was found to be strontium bromid in from a 10 to a 20 per cent. solution, since it is entirely harmless even when used in large quantities. If from 10 to 15 per cent. of such a solution is injected into the blood stream and the backward flow is prevented by central stasis, a roentgenogram can be made of the corresponding vascular area. As the character of the stasis is modified, various isolated vascular areas can be photographed. In the roentgenograms, the valves of the veins, the collateral circulation and the network of the arteries appeared clear and distinct. Also the results of injections of brominized oil in experiments on animals were interesting. The passage of drops of oil through the body and from the right side of the heart into the lungs could be observed. By dissolving contrast mediums in oil, it became possible to study the spinal cord. Berberich and Hirsch were of the opinion that this procedure would prove of great value for the study of physical and pathologic conditions affecting the circulation in the human organism.

An Attempt to Explain the Origin of Sultry Weather

Professor Kestner, director of the physiologic institute in Hamburg, has an article in the *Klinische Wochenschrift* setting forth the results of his experimental endeavors to discover an explanation for the sultriness that we feel at times during murky weather. He established that air that has been acted on by an arc lamp lowers the blood pressure of the arteries, and that the substance which causes this is nitrous oxid. Also all other light sources which emit ultraviolet rays produce in their vicinity nitrous oxid. He also observed that on sultry days blood pressure in human beings is lowered, and by comparison of the wind and the blood pressure he discovered that a relationship exists between the two phenomena. On the days on which Kestner observed a fall of blood pressure in his human experimental subjects, the prevailing wind moved downward toward the earth—was a so-called *Fallwind*. Under these atmospheric conditions, nitrous oxid could be noted in the air. The feeling of sultriness, the peculiar sensations associated with the Föhn wind, the storm breeder of Switzerland, and with the sultry sirocco of Italy, are due, according to Kestner, to the nitrous oxid in the air. It has often been maintained that the feeling of sultriness was due to a high temperature associated with high humidity, whereby the heat regulatory mechanism of the body was disturbed. That cannot be correct, Kestner contends, since the so-called *Fallwinde* are dry winds; these winds have a high content of nitrous oxid. The reason the high content of nitrous oxid has been overlooked heretofore may doubtless be found in the facts that nitrous oxid is not very reactive, that the reactions it has are not very characteristic, and that it cannot be separated by absorption.

Marriages

Henry Gordon Jackson, Chicago, to Miss Mae Walker Robinson of New York, November 24.

Wetherbee Fort, Baltimore, to Miss Katherine Goll Helfrich of Catonsville, Md., November 14.

Archibald F. MacCauley, Ottawa, Ont., to Miss Laura McFadden of Renfrew, November 28.

Ronald LeRoy Ross, Akron, Ohio, to Miss Hazel Cleveland of Louisville, Ky., October 17.

Charles Wentworth De Wolf to Miss Lucie C. Brueggemann, both of Boston, October 23.

Sven Richard Lokrantz to Miss Caroline Winston, both of Los Angeles, November 28.

Paul H. Moore, Toledo, to Miss Lucille M. Munn of Portage, Ohio, in November.

Lawrence James Lawson to Miss Ruth Watson, both of Chicago, December 8.

Herschel P. Bowser to Miss Ina Gortner, both of Goshen, Ind., September 12.

Harry Leigh, El Paso, to Miss Mary Neighbors of San Marcos, October 8.

Deaths

Alfred Curtis Rice, McSherrystown, Pa.; College of Physicians and Surgeons, Baltimore, 1897; member of the Medical Society of the State of Pennsylvania; member of the town council and president of the school board; on the staff of the Annie M. Warner Hospital, Gettysburg; aged 47; died, November 16, of pneumonia.

William Landram McFarland ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1901; member of the Medical Association of the Isthmian Canal Zone; clinical professor of pathology and bacteriology at the New York Polyclinic Medical School; aged 48; died, November 14.

Joseph Ignatius Callanan, San Francisco; Stanford University (Calif.) School of Medicine, 1916; served in the M. C., U. S. Army, during the World War; on the staff of the Emergency Hospital; aged 33; was found dead in his automobile, November 20.

Ross R. Anderson ⊕ Salt Lake City, Utah; College of Physicians and Surgeons, Baltimore, 1905; at one time health officer of Mount Pleasant, and on the staff of the Hollywood (Calif.) Community Hospital; aged 44; died, November 9, of pneumonia.

Oliver B. Bush, Pelham, Ga.; University of Georgia Medical Department, Augusta, 1891; member of the Medical Association of Georgia; formerly member of the state legislature; aged 52; died, November 13, following a long illness.

Robert L. McMahon ⊕ Lieutenant, M. C., U. S. Navy, Plainfield, N. J.; University of Texas Department of Medicine, Galveston, 1896; aged 48; died at the U. S. Naval Hospital, Brooklyn, November 15, of carcinoma.

Albert Virgil Franklin ⊕ New York; Cornell University Medical College, New York, 1911; assistant urologist to Sing-Sing Prison; aged 39; died, November 16, of an overdose of chloral, presumably self-administered.

Robert Vance Stewart ⊕ Monongahela, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1905; aged 43; on the staff of the Memorial Hospital, where he died, November 12, of cardiorenal disease.

John Duncan Emmet, Morristown, N. J.; University of Virginia Department of Medicine, Charlottesville, 1880; Medical Department of Columbia College, New York, 1882; aged 66; died, November 15, of pneumonia.

John P. Campbell, Fort Garland, Colo.; American Medical College, St. Louis, 1878; member of the Illinois State Medical Society; formerly member of the state legislature; aged 76; died, November 3, of senility.

Emma Chambers Clark ⊕ Dover, N. J.; Syracuse (N. Y.) University College of Medicine, 1902; member of the school board; pathologist to the Dover General Hospital; aged 57; died, November 17.

August Fehlen, San Francisco; Cooper Medical College, San Francisco, 1894; member of the California Medical Association; aged 63; died, November 13, of myocarditis and arteriosclerosis.

John Wanamaker III, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1899; for thirteen years police surgeon; aged 48; died, November 17, of pneumonia.

Moses Hudfred Eades, Sweeny, Texas; St. Joseph (Mo.) Hospital Medical College, 1881; member of the State Medical Association of Texas; aged 72; died, November 7, of senility.

John Walters ⊕ Wharton, N. J.; Medical Department of Columbia College, New York, 1890; aged 59; died, November 9, at the Paterson (N. J.) General Hospital, of septicemia.

Charles W. Johnson, Jacksonville, Fla.; Homeopathic Hospital College, Cleveland, 1881; on the staff of St. Luke's Hospital; aged 66; died, November 7, of angina pectoris.

Laurence D. Grenier, Cheboygan, Mich.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1871; aged 68; died, November 11, of cerebral hemorrhage.

Luke P. V. Williams, Whiteland, Ind.; Kentucky School of Medicine, Louisville, 1889; member of the Indiana State Medical Association; aged 61; died, September 30.

John Purves, Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1899; member of the California Medical Association; aged 56; died recently.

Elizabeth N. Told, Chicago College of Medicine and Surgery, 1909; aged 36; died, November 23, at the Mary Thompson Hospital, following an appendectomy.

William Clark Robinson, De Witt, Iowa; Missouri Medical College, St. Louis, 1880; also a druggist; aged 72; died suddenly, November 26, of heart disease.

Andrew Barrisdale Riddell, Bayham, Ont., Canada; Victoria University Medical Department, Toronto, 1886; aged 64; died recently, at Richmond, Ont.

Charles Carpenter Wiggins ⊕ Osage, Iowa; Chicago (Ill.) Homeopathic Medical College, 1889; aged 58; died, November 17, of ulcer of the stomach.

George Milo Russell, Massena, N. Y.; Long Island College Hospital, Brooklyn, 1880; formerly county coroner; aged 70; died, October 16, of septicemia.

Alfred H. Hinde, Ocean Beach, Calif.; Rush Medical College, Chicago, 1878; formerly a practitioner in Chicago; aged 71; died, November 14.

John Alexander Leeper, Columbus, Ohio; Medical College of Ohio, Cincinnati, 1887; Civil War veteran; aged 80; died, November 13, of senility.

David L. Corbin, Van Wert, Ohio; Eclectic Medical Institute, Cincinnati, 1868; Civil War veteran; aged 82; died, November 8, of senility.

George W. Wishard, Minneapolis; Medical College of Indiana, Indianapolis, 1880; aged 58; died, November 19, of cerebral hemorrhage.

Leo Dow Rose, Utica, Neb.; University of Nebraska College of Medicine, Omaha, 1921; aged 28; died, November 13, of ptomaine poisoning.

Henry Stephen Canavan, New Bedford, Mass.; Tufts College Medical School, Boston, 1923; aged 29; died, November 15, of pneumonia.

William W. Bowling, Canmer, Ky.; University of Louisville (Ky.) Medical Department, 1871; aged 86; died, November 20, of senility.

David Edward Broderick, Wichita, Kan.; Rush Medical College, Chicago, 1901; aged 43; died, November 14, following a long illness.

Neil D. McVicar ⊕ Imlay City, Mich.; Saginaw (Mich.) Valley Medical College, 1903; aged 45; died, November 10.

Elliot H. Marsh, Mansfield Center, Conn.; Eclectic Medical Institute, Cincinnati, 1881; aged 77; died recently, of senility.

Robert B. Stapleton, Tunica, Miss.; Memphis (Tenn.) Medical College, 1885; aged 71; died, November 14, of senility.

Charles G. Schmidt ⊕ St. Jacob, Ill.; Marion-Sims College of Medicine, St. Louis, 1897; aged 51; died, November 25.

William Alfred Wood, Kansas City, Mo.; Barnes Medical College, St. Louis, 1894; aged 64; died, November 13.

Balthasar Firsich, North Vernon, Ind. (licensed, Indiana, 1898); aged 77; died, November 8, of senility.

John F. Abrams, Wellsville, Mo. (years of practice); aged 83; died, October 15, of senility.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE GALVANO NECKLACE FOR GOITER

Another Piece of Pseudo-Science Given Recognition by the United States Patent Office

In the cheap and not-too-particular rural weeklies there have been running for a few years past advertisements of the "Galvano Necklace," said to be "the latest discovery for the relief or cure of goiter by mild electrical treatment." Like another widely advertised nostrum it is said to "Work while you sleep." The device is advertised by the Cosmas Pharmacal Company of Watertown, Wis. The officers and directors of the Cosmas Pharmacal Company are said to be:

Frederick, C. Werner, M.D., President, Manager and Director.
Eleanora Werner, Vice-Presideent and Director.
Margaret Werner, Secretary, Treasurer and Director.

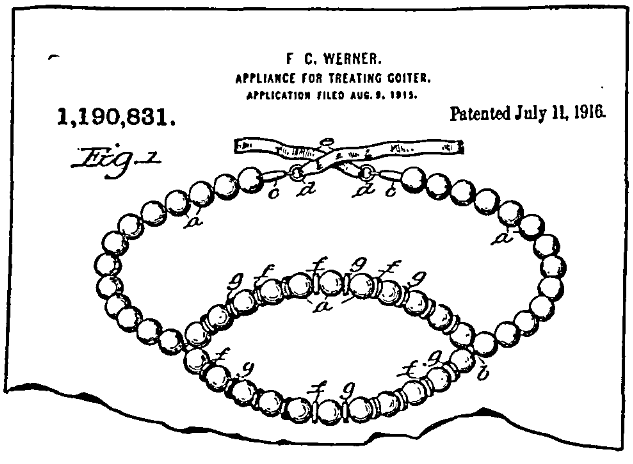
F. C. Werner is also named on the Cosmas Pharmacal Company's stationery as "Consulting Physician" and in the company's advertising matter is described as the inventor of the Galvano Necklace. Altogether, F. C. Werner seems to be a veritable Pooh-Bah.

For some time The Journal has been receiving inquiries from physicians and laymen regarding the Galvano Necklace. A county health commissioner in Ohio writes:

> "I am mailing you today an advertised treatment for goiter, Cosmas Pharmacal Company of Watertown, Wis. I am also enclosing a letter from this company to the patient who took the treatment. The package was brought to our attention for investigation. Will you please take the matter up in the Propaganda Department?"

While from Montana a physician writes:

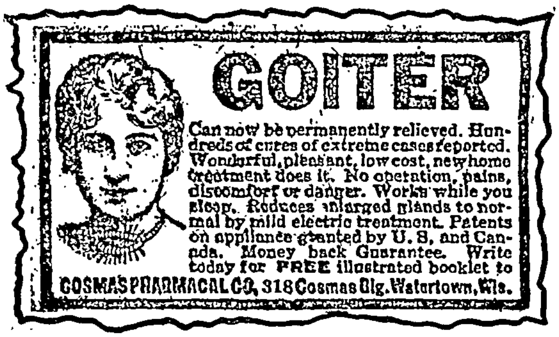
> "Enclosed find an advertised goiter cure. You have probably seen same before but if not I thought it might be of interest in connection with the Propaganda for Reform Department of The Journal."



The "Galvano Necklace" as illustrated in specifications of Patent No. 1190831 issued by the United States government on an alleged "new and useful improvement in appliances for treating goiter."

Those who answer the Cosmas Pharmacal Company's advertisements receive a letter signed "F. C. Werner, M.D., Consulting Physician," stating that the letter had been referred to Werner by the company. One likes to visualize F. C. Werner receiving a letter in his capacity of President and Manager of the company and gravely referring the letter to himself in his capacity of "Consulting Physician." Mr. Werner goes on to state that he is sending a booklet giving full information about the necklace and adds that he "can sincerely recommend the necklace to you for your goiter." All he asks is that it be used faithfully "and you will soon get rid of your goiter." There is enclosed the usual diagnosis chart of the mail-order quack which the prospective victim is urged to fill out. Werner declares that he will give it his personal attention.

The booklet referred to in the letter bears on the outside cover a highly imaginative picture of the Galvano Necklace. From part of the necklace there emanate what at first sight seems to be cats' whiskers but what, presumably, is supposed to represent electrical radiations. Inside the front cover is a picture of F. C. Werner, the inventor.



GOITER

Can now be permanently relieved. Hundreds of cures of extreme cases reported. Wonderful, pleasant, low cost, new home treatment does it. No operation, pains, discomfort or danger. Works while you sleep. Reduces enlarged glands to normal by mild electric treatment. Patents on appliance granted by U. S. and Canada. Money back Guarantee. Write today for FREE illustrated booklet to

COSMAS PHARMACAL CO., 318 Cosmas Blg. Watertown, Wis.

Photographic reproduction of a typical "Galvano Necklace" advertisement such as appear in rural weeklies with low advertising standards.

According to this booklet: "Of the many remedies tried so far to cure goiter, the galvanic current has been the most successful. It is . . . much more reliable than any of the other remedies used heretofore." The sufferer is then told that it is the galvanic current that is used when one purchases the Galvano Necklace.

THE UNITED STATES GRANTS A PATENT

There is stressed the fact that the United States has granted a patent on this device. The public, of course, does not know that the United States Patent Office has granted patents on many preposterous pieces of medical pseudoscience, some of them so ridiculous that other departments of the government have declared them frauds and debarred their exploiters from the use of the United States mails.

On July 11, 1916, the United States Patent Office granted Patent No. 1,190,831 to Frederick Werner of Watertown, Wis., on an "Appliance for Treating Goiter." According to the patent specifications, the Galvano Necklace consists of beads made of glass or other insulating material between which are placed, alternately, small zinc and copper discs. Through the discs and beads runs a metallic wire. The alleged purpose of the invention is that of "generating galvanic currents in contact with the skin in the presence of mercurous iodid and calcium chlorid." In use an ointment containing mercurous iodid and calcium chlorid is applied to the skin of the neck and the necklace is then hung so that that part containing the zinc and copper discs will come in contact with the anointed skin. On the basis of this fantastic theory the Patent Office at Washington granted to Werner a patent on this alleged "new and useful improvement in appliances for treating goiter."

When this device was first put on the market Werner charged $3.50 for it. Then in 1916 the price was raised to $5.00 and in 1917 it was $7.50, the present charge made for the device. The necklace itself is a cheap and tawdry looking affair of greenish-yellow and terra cotta colored beads. As an adornment it would fail to find a purchaser if offered in competition with the "jewelry" of the Five-and-Ten-Cent stores. As a therapeutic device it ranks with a string of wampum. That it has the slightest value in the treatment of goiter is, of course, unthinkable. Young women with physiologic enlargement of the thyroid will, doubtless, continue to purchase the device and as the enlargement disappears, as it normally does, will furnish Werner with all the testimonials that he can use.

Correspondence

"PROTEIN AND PELLAGRA"

To the Editor:—In his reply, last week, to my comment on his article, Professor Hindhede first considers a point which I referred to as of no vital importance, and, secondly, states that "Dr. Goldberger has changed his mind," without really making clear about what "Dr. Goldberger has changed his mind," assuming (what is not a fact) that he changed his mind, and without showing what relation, if any, this has to the major issues raised by him on which I commented.

In my comments, if I may be permitted to recall, I addressed myself to three or four points, of which only two were regarded as of real importance. These were: 1. The charge that Goldberger and associates were reprehensible advocates of the view that pellagra is caused by lack of animal protein. 2. The argument in support of Hindhede's view that "the question of pellagra is not a question of protein but of vitamin."

With respect to the first of these, evidence was adduced showing clearly that the charge was entirely without warrant. With regard to the second, I endeavored to make clear that the evidence advanced in support of his view (which might or might not be proved to be correct but was not an issue under discussion) that pellagra is a question of vitamin and not of protein, was inconclusive.

By his silence on these two major questions it would seem that Professor Hindhede accepts my criticisms as sound.

JOSEPH GOLDBERGER, M.D., Washington, D. C.

THE ABRAMS CULT AGAIN

To the Editor:—For the benefit of the profession and the public, I am sending you the following information:

One A. Campbell, a reputed osteopath and a follower of Albert Abrams, recently brought suit in a Tulsa County court against Mr. Earl W. Deputy of this city. The suit was for the collection of a bill of $130 for alleged "services rendered" Mr. Deputy's wife. In defense, Mr. Deputy charged that Campbell treated his wife by fradulent methods and infected her eyes by putting over them a pad used (without sterilizing) on all his patients. Campbell, it seems, diagnosed Mrs. Deputy's case as one of cancer of the colon and "lues," but evidence was introduced from reputable laboratory men disproving the presence either of malignancy or syphilis. As a result, Campbell lost his suit.

Mr. Deputy has now brought suit against Campbell for $25,000 damages for the injury to his wife's eyes and for the false diagnosis of syphilis—a diagnosis which Campbell attempted to report to this health office, but the report was not accepted on the grounds that fradulent and incompetent means of diagnosis had been employed.

G. E. HARTSHORNE, M.D., Tulsa, Okla.
County Superintendent of Health.

A NOTE ON THE "NAVEL BUTTON"

To the Editor:—The general belief of the layman that any protrusion in the umbilical region of a baby is a hernia, we know, of course, to be wrong. A real hernia is rare, and demands, generally, surgical intervention. It is probably well for the baby that parents do take notice of unnatural protrusions; by replacing and retaining, a real hernia may be prevented. My purpose, however, is to speak against the use of wedge-shaped buttons made in any of the numerous forms now common on the market. One needs to think [illegible] for a moment to realize that their use defe [illegible] ich they are intended. It is a simple fact in physics that if it is desired to keep an opening open, a wedge, for instance, inserted and retained will accomplish that end. Why is this reasoning not applicable to the use of a wedge-shaped button strapped tight over the opening in the abdominal wall between the edges of the rectus muscles? To be sure, the wedge of these buttons is low and the opening it makes shallow, but most certainly its use must delay Nature's efforts for repair, if not unduly hinder them.

Another objection to their use is that, to keep the button in place over the navel, tight bandages or belts are worn about the abdomen. In a very young baby, such an appliance is conducive of vomiting, and is uncomfortable.

Adhesive plaster strapping is cheaper, cleaner, and more satisfactorily retains the variety of protrusions we so commonly meet.

H. Merriman Steele, M.D., New Haven, Conn.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF TETANUS

To the Editor:—In my practice I saw recently a boy, about 6 years old, suffering from tetanus infection, caused by a large splinter in the thenar eminence of the right hand. He had fever, opisthotonos, complete trismus and constant convulsions. His right arm was held stiff; his fingers were rigidly bent into a fist, and the fist was pronated outward and bent on the forearm. He was given 3,000 units of antitetanic serum intraspinally (with great difficulty), and 10,000, intravenously at once. The following day the same dose was administered intravenously, and this was repeated again the third day. A large piece of splinter was removed from the hand on the day of entrance. He was supposed to have received the injury five or six days previously. On the fourth day a tourniquet was applied after the manner of Bier's hyperemia technic, to the upper third of the arm, and 10,000 units of the serum was injected subcutaneously in the region of the injury. In about ten minutes, the arm that had been held rigidly became normally lax and free from all spasm, and continued so till the hour had passed in which the hyperemia and supposed retention of serum lasted. Of course, a slight relaxation of the tourniquet was from time to time permitted to prevent pain and too great congestion. This was repeated again in two days, and the child received no further treatment, recovering in about ten or twelve days from onset. Is it possible that a tourniquet can shut tetanic toxin off from the brain? What can serum so administered do in the matter of diluting or neutralizing such toxin? Please omit my name.

M.D., Nebraska.

Answer.—Tetanus toxin reaches the central nervous system by way of the nerves, and the remarkable course in the case described may have been due in part to the effects of the passive hyperemia and the action of the antitoxin. Possibly the passive hyperemia favored the direct action of the antitoxin on the toxin in the nerves of the arm and at the site of the infection; but it must not be overlooked that removal of the part of the splinter in the hypothenar eminence may have removed also the major source of the toxin, and that the effects of the passive hyperemia and local injections of antitoxin played a more subordinate part.

SPECIAL TRAFFIC REGULATIONS FOR PHYSICIANS

To the Editor:—Our city is about to pass a traffic ordinance limiting possibly the parking of cars to sixty minutes. This time limit would be a hardship to physicians, and our county society has delegated me to make inquiries about the custom in other cities. Our city attorney claims that an exception for physicians would be class legislation and, therefore, unconstitutional. It has been intimated that if we could show that any city gives preference to physicians, it would establish a precedent, and our council would grant us equal privileges. What is the status in Chicago or any other cities that you may know of? Any information you can give us would be greatly appreciated.

J. B. Berteling, M.D., South Bend, Ind.

Answer.—A large number of cities give official regulation in various ways to physicians' cars. In some places the ordinances merely state that physicians' cars are exempt; others require some definite marking, while many specially mention the physician's automobile emblem as furnished by the American Medical Association.

The cities of Chicago, New York, New Orleans, Wheeling, W. Va., Oklahoma, Boston and Pittsburgh are some of the larger places that have regulations providing for special plates to designate physicians' cars. The physician's automobile emblem is mentioned by name in police regulations of Erie, Pa.; Denver; Pittsburgh; Raleigh, N. C.; Little Rock, Ark.; Buffalo; Washington, D. C.; Duluth, Minn.; Bay City, Mich., and Peoria, Ill.

Extracts from letters of the chiefs of police of Pittsburgh and Buffalo give a clear idea of action taken in the various places. The chief of police of Pittsburgh writes:

> A city ordinance authorizes the department of public safety to issue to physicians who reside in the city of Pittsburgh a red Maltese cross, numbered consecutively. Traffic officers have instructions to expedite the passage of these automobiles bearing red cross tags when physicians are on urgent calls. If a physician violates the traffic regulations, his number is taken, but only in extreme cases is he arrested on view; but if the violation is flagrant, he is called on to explain in writing. These red cross tags are issued on a deposit of 50 cents. They do not include dentists, chiropractors, etc., but are confined solely to doctors of medicine.

The chief of police of Buffalo writes:

> Send to headquarters this evening for a card on which is printed an emblem usually known as "the physician's emblem." You will make sure that every member of your command is shown this card. Hereafter members of the force, when regulating traffic, who observe an auto having "the physician's emblem" on front of radiator will give it the right of way over all ordinary traffic. Do everything possible to give it free and easy movement through the streets. When a car with this emblem is found parked in a space usually limited as to time, it will not be ordered removed to auto pound, but allowed to remain until physician is ready to move it.

State legislation tending specially to designate the physician's automobile emblem is being considered in Massachusetts, Rhode Island and Wisconsin. The Massachusetts State Medical Society has just adopted the Physician's Automobile Emblem for its Fellows.

OPERATION FOR CLUBFOOT

To the Editor:—What is the preferable age for operating on a child for clubfoot? Please do not mention my name.

R. G. M. P. M.

Answer.—The treatment of congenital clubfoot should begin in the first month of life. Early treatment consists of simple, painless, daily manual corrective manipulation by the nurse or mother under the physician's directions. At 2 or 3 months, many of these feet will accept a carefully applied plaster cast, maintaining the slightly corrected varus and equinus and extending from the toes to the trochanter over the knee bent at right angles. Only moderate pressure should be exerted to obtain this partial correction. In two weeks, another cast may be applied; more correction will be easily obtained. In this way, with repeated casts, each securing additional correction a congenital clubfoot is, in skilful hands, frequently entirely overcorrected in both its equinus and varus without any operation. The tediousness of the method should not exclude it. Some surgeons prefer to wait until the child is older, say, when attempts at walking are made, and then correct by operation under anesthesia. The best foot architecture and the nearest approach to normal foot tissues, however, are obtained when the foot begins to approach a natural walking position at the earliest possible age.

ARE THE KIDNEYS IN THE ABDOMINAL CAVITY?

To the Editor:—I have a health and accident insurance policy which entitles me to an indemnity of $200 if I am subjected to a laparotomy, which the policy defines as the "opening of the abdominal cavity for an operation on any organ contained therein." An abscess in my right kidney was drained by a posterior incision through the loin. The insurance company claims that since the kidneys are outside the peritoneal lining of the abdominal cavity, they are outside the cavity, and that the operation was not a laparotomy within the meaning of the policy. Which marks the outside limit of the abdominal cavity, the peritoneal lining or the walls of the abdomen?

J. S.

Answer.—All writers on anatomy describe the kidney as being within the abdominal cavity; in fact, there is no embryologic, anatomic or surgical basis for locating the kidneys elsewhere than in the abdominal cavity. "Laparotomy" means simply an incision through the abdominal wall at any point, and need not involve opening the peritoneal cavity. Subperitoneal laparotomies are well known and frequently described in surgery.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

COLORADO: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Wilmington, December 11-13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

KENTUCKY: Louisville, December 11. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

LOUISIANA: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: Baltimore, December 11-14. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

SOUTH DAKOTA: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

VIRGINIA: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, Olympia.

WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

INVESTIGATION OF MEDICAL LICENSEES IN CONNECTICUT

Two weeks ago, we published the record of one of the men whose medical qualifications are under investigation in Connecticut. Records of others will be published as space permits. This week, the report concerns the record of:

Frank Edward Gavlas

According to records which have been accumulated at the headquarters of the American Medical Association, for many years, Frank Edward Gavlas was born at Wilkes Barre, Pennsylvania, September 12, 1889; graduated from the Wilkes Barre High School in 1909; attended Jefferson Medical College for one year, 1909-10; took his second and third years at the University of Maryland, 1910-12; and took his fourth year in, and was graduated by the Eastern University School of Medicine, Maryland, 1913. Gavlas was licensed by the Florida Eclectic Board of Medical Examiners December 2, 1913. The Atlanta, Georgia, *Journal* on October 13, 1916, said that the Georgia Board of Medical Examiners revoked the licenses of six physicians on the grounds of fraud, involving the Southern School (College) of Medicine and Surgery. One of the six physicians named was "Dr. F. E. Gavlas, believed to be in Florida." Records show that in 1916 Gavlas was a member and president of the Florida Eclectic Board of Medical Examiners and, according to reports, was removed from office by order of the Governor as an alleged recipient of bribes. Frank E. Gavlas was reported as having been licensed by the Eclectic Medical Examining Board of Connecticut July 10, 1917, as a graduate of the Kansas City College of Medicine and Surgery. He is reported as having been licensed also in Arkansas in 1917. Apparently the records of Frank Edward Gavlas and Frank E. Gavlas concern the same individual, which would indicate that he holds diplomas from the Eastern University School of Medicine, and from the Kansas City College of Medicine and Surgery.

A word concerning the Eastern University School of Medicine from which he holds his original diploma: This school was organized in 1912 as the Eclectic School of Milton University, but shortly thereafter assumed the title of Eastern University School of Medicine. In 1914, the name was changed to the Maryland College of Eclectic Medicine and Surgery. Its dean, who was also one of its incorporators, was Frank J. Kenney. Kenney was reported as not licensed in Maryland, having failed to pass the state board examination. The college was never recognized by the Maryland State Board of Registration in Medicine. The corporation was dissolved in 1915. During the latter part of 1917, however, Kenney and others were reported to have been involved in the sale of diplomas from the Maryland College of Medicine and Surgery for two of which, it is alleged, Kenney received $135 and $1,100 respectively.

To summarize, Frank E. Gavlas holds diplomas from two schools; one thoroughly discredited formerly, and the other under suspicion in the present investigation. He had been involved in licensing scandals in Georgia and in Florida before the present investigation in Connecticut.

Colorado July Examination

Dr. David A. Strickler, secretary, Colorado Board of Medical Examiners, reports the written examination held at Denver, July 3, 1923. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 41 who took the physician's and surgeon's examination, 35 passed, including 6 osteopaths; and 6 failed, including 4 osteopaths. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado School of Medicine		(1923, 21)	78.3, 79.6, 82, 83.5, 83.6, 84.6, 85, 85, 85.6, 86.5, 86.5, 86.5, 87.1, 87.3, 87.6, 87.8, 89.7, 90, 90, 90, 92.3
Rush Medical College		(1923)*	78
Kansas City Univ. Phys. and Surgs., Mo.		(1923, 4)	75, 75.2, 77.8, 88.2
St. Louis College of Physicians and Surgeons		(1923)	80.6
University of Oklahoma		(1922)	78.4
University of West Tennessee		(1921)	76.2
Osteopaths			75, 75, 75.4, 76.3, 77.5, 87.2

College	FAILED	Year Grad.	Per Cent.
Kansas City College of Medicine and Surgery		(1923)	70.2
University of West Tennessee		(1922)	67.6
Osteopaths			67.1, 67.4, 70.6, 70.8

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1912)	Texas
University of Kansas School of Medicine		(1921) (1922)	Kansas
University of Louisville Medical Department		(1921)	Ohio
University of Michigan		(1911)	S. Dakota
University of Minnesota		(1920)	Minnesota
Kansas City Medical College		(1891)	Kansas
Washington University Medical Department		(1922)	Illinois
University of Nebraska		(1922)	Nebraska
University of Pennsylvania		(1918)	Minnesota
Vanderbilt University Medical Department		(1907)	Tennessee
University of Virginia		(1913)	Mississippi

* This candidate has finished his medical course, and will receive his M.D. degree on completion of one year's internship in a hospital.

Connecticut July Examination

Dr. Robert L. Rowley, secretary Connecticut Board of Medical Examiners, reports the written examination held at Hartford, July 10-11, 1923. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 34 candidates examined, 28 passed and 6 failed. Five candidates were licensed by endorsement of their credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University		(1922, 3) 78.2, 87.4, 89.1, (1923, 7)	76.2, 76.5, 80.5, 81.1, 84.3, 81.9, 81.9
Johns Hopkins University		(1920)	78.7
University of Maryland		(1923)	82.9
Harvard University		(1921) 81.6, (1922) 85.7, (1923)	88.9
Tufts College Medical School		(1922) 81.9, (1923)	78.4
Columbia University		(1920)	77.3
Cornell University		(1923, 2)	81.2, 85.8
Jefferson Medical College		(1922) 82, (1923, 2)	79.2, 82.6
University of Vermont		(1920) 78, (1921)	75.2
National University, Athens, Greece		(1918)*	76.9
University of Naples, Italy		(1920)*	75
University of Moscow, Russia		(1917)*	75.4

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles		(1920)	51.8
Grand Rapids Medical College		(1906)	61.8
Fordham University School of Medicine		(1916)	72.7
Jefferson Medical College		(1912)	71
University of Budapest, Hungary		(1912)*	70
University of Naples, Italy		(1922)*	61.1

College	LICENSED BY ENDORSEMENT	Year Grad.	Number Licensed
Harvard University		(1914)	1
University Medical College of Kansas City		(1896)	1
Dartmouth Medical College		(1914)	1
Albany Medical College		(1904)	1
Woman's Medical College of the New York Infirmary of Women and Children		(1898)	1

* Graduation not verified.

Book Notices

Pediatrics. By Various Authors. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School. In eight volumes. Cloth. Price, $10 per volume. Volume I: pp. 1240, with 284 illustrations. Volume II: pp. 1025, with 180 illustrations. Philadelphia: W. B. Saunders Company, 1923.

The first two volumes of Abt's system of pediatrics, preparations for which were made in 1914, have now appeared. Authors were selected and topics assigned, but the beginning of the World War threw the work into confusion; when America entered the conflict in 1917, it was completely interrupted. With the coming of peace, it was found necessary, before proceeding further, to revise, and in some instances, to rewrite wholly such articles as had already been prepared. As Dr. Abt states in the preface, no extensive compilation of pediatric knowledge has been published since Keating's encyclopedia in 1889.

The Abt system is composed essentially of monographs of considerable length written by men who have contributed largely to the literature of the subjects they discuss. The first volume contains a "History of Encyclopedias" by Dr. Abt, "A History of Pediatrics" by Fielding H. Garrison, "Congenital and Acquired Predisposition and Heredity" by Clarence C. Little, "Anatomy" by Richard E. Scammon, "Growth and Development" by T. Brailsford Robertson, "Physiology of Metabolism" by John R. Murlin, "Physical Chemistry in the Physiology of Childhood" by J. F. McClendon, "Hygiene of the Home and of Infancy" by Walter R. Ramsey, "Hygiene of the School Age" by Josephine Young, "Climatotherapy" by F. L. Wakeham, and "Hygiene of Crippled Children" by H. Winnett Orr.

The article by Garrison is marked by the learned atmosphere and sense of interest and romance that is characteristic of his work. Beginning with the earliest times, he has collected a vast amount of ancient literature for the selection of references and quotations on the diseases of childhood. His article is beautifully illustrated with portraits and reproductions of paintings, and concludes with an excellent bibliography of periodical publications devoted to pediatrics. He traces the trend toward preventive medicine in pediatrics, which has paralleled a similar trend in all branches of medical science. This important contribution occupies 170 pages.

There are perhaps few subjects on which physicians are less well informed than on the influences of heredity in health and disease. The article by Clarence C. Little is a carefully prepared statement based largely on experimental investigations. It is perhaps somewhat too technical a contribution for a work addressed, particularly to practicing physicians. The influence of heredity in cancer, in chorea, in multiple births and in mental traits are some of the points that will be of particular interest to the general reader. The section on anatomy is thoroughly illustrated, and contains numerous tabular statements of great value for reference purposes. The article by T. Brailsford Robertson on "Growth and Development" is perhaps the most complete and carefully worked out statement of its kind available in the English language. It should be of great service in studies as to development in accordance with normal standards.

Murlin's article is well up to the standard of the rest of the work, the chief emphasis being placed on infant metabolism, and the manner in which it varies from that of the adult. The article on the "Hygiene of the Home" is merely a brief consideration of ventilation. On the other hand, that on "Hygiene of the School Age" by Josephine Young is a complete and valuable analysis of progress in this field, supplying a large amount of important data not heretofore collected under one cover. Practically every phase of the child's activities related to health is here thoroughly discussed, including child play, posture, instruction in sex hygiene, mental hygiene and school architecture. In the section on school architecture appears a more elaborate discussion of heating and ventilation than the original contribution by Ramsey, previously mentioned. The second article by Ramsey on "Hygiene of Infants in General" contains numerous practical hints. "Climatotherapy" is too briefly discussed and the article too generalized to be of very much service. The final article in the first volume, on the "Hygiene of Crippled Children," is a brief consideration of the statistics as to the number of cripples in various cities, and the desirability of planning special institutions for their care.

Space does not permit a complete list of the articles which appear in the second volume, but special attention may be called to a valuable consideration of infant mortality by Richard A. Bolt. The statistics quoted are up to date. The section on roentgenology in pediatrics by Frederick C. Rodda is complete and thoroughly illustrated. Of special interest also is the article by Dr. J. Diven on the "Peculiarities of Disease in Childhood." It is full of concentrated information which must be constantly borne in mind by those who attempt to diagnose and treat disease as it affects the child. The chapter on "Prophylaxis and Treatment," by L. R. DuBuys, unfortunately includes brief discussions on climatotherapy and ventilation, already considered twice in the previous volume. The section on heliotherapy is especially complete, so far as it concerns the Rollier method, but fails to mention more recent researches and the modern application of this method in diseases other than tuberculosis.

Two of the most valuable articles in this volume are those on "Diseases of the New-Born," by N. O. Pearce, and on "Premature Infants," by Julius Hess. These are thorough, and represent the study of a vast amount of material. The remainder of the second volume deals largely with the feeding of infants and with diseases related to feeding problems. The section on rickets supplies information on light therapy not included in the special article on the latter subject.

The criticisms usually made of systems of medicine apply to only a minor extent to these two volumes. On the whole, there is little repetition, and the articles are in general of high caliber. The very method by which such systems are created makes it difficult for the editor to reject material once it has been requested, and the irregular manner in which the material is assembled makes it almost impossible to obtain a perfect and logical arrangement. Dr. Abt is to be congratulated on the steady devotion of purpose over almost a decade, which has resulted in the compilation and publication of this excellent work.

Anaesthetics in Practice and Theory. A Text-Book for Practitioners and Students. By J. Blomfield, O.B.E., M.D., Senior Anaesthetist to St. George's Hospital. Cloth. Price, $7.50. Pp. 424, with 48 illustrations. Chicago: Chicago Medical Book Co., 1923.

In this volume the author has quite completely covered the theory and practice of anesthesia. The book presents the subjects in a practical manner and is designed for medical students and anesthetists. The author states in the introductory chapter that "the advantage of combining local and general methods is becoming more and more apparent. The anesthetist today has many methods at his disposal. No little part of his success depends upon his choosing for each case not only the right anesthetic agent, but also the right mode of administering it. As the art of giving anesthetics has advanced from those crude methods when, assisted by a strong porter or efficient straps, the administrator drenched a struggling patient with ether vapor from an unwashed cone, to the practice of today, so the professional status has improved of those who devote themselves entirely to the practice of anesthetics. The administration of anesthetics by trained nurses cannot be regarded as an arrangement likely to lead to improvement in practice. Only a fully trained medical man or women should be entrusted with the care of the narcotized patient, and only such persons are capable of advancing the science and art of anesthesia." A chapter is devoted to the physical and chemical nature of general anesthetic agents, and several simple tests for their purity are given. The three chapters devoted to the physiologic action of general anesthetics will be read with interest by physiologists and the anesthetist possessing an investigative mind. Experimental laboratory results reached by competent investigators are cited and compared with clinical manifestations. The various methods of administration and the clinical effects of different agents during and after anesthesia are well discussed. The chapter dealing with the choice of the anesthetic must receive unfavorable criticism because of the continual recommendation of chloroform not only for operations but also for labor, although the author fully recognizes its dangers. To the anesthetist who never under any circumstances administers chloroform, the question naturally presents itself why it is necessary to resort to this dangerous anesthetic. Is it due to faulty technic of administration or to the product of ether or nitrous oxid supplied? Two chapters are devoted to local analgesia, and the final chapter deals with fatalities under anesthesia. There are complete author and subject indexes. The volume should be received favorably by those interested in anesthetics and their administration.

Diseases of the Gums and Oral Mucous Membrane. By Sir Kenneth Goadby, K.B.E., M.R.C.S., L.R.C.P., Lecturer on Bacteriology of the Mouth, Dental Department, University College Hospital. Cloth. Price, $14. Pp. 383, with illustrations. New York: Oxford University Press, 1923.

This is an unusually comprehensive treatise on mouth diseases, finely illustrated by eight plates in color and 106 in black and white. It is a compilation, largely from the author's own writings, together with extensive borrowed material from almost all fields of medical and dental science. The title gives only a slight idea of the scope of the work. Much space is given to syphilis, infection with *Actinomyces,* neuralgias, alveolar abscesses, sprue, tumors, pyorrhea alveolaris, roentgenography, vaccines, histology and bacteriology. Without detracting in the least from the worth of the book, it may be said that there is little in it that is new, its principal value being due to the fact that the author has presented in convenient form most of the diseases of the mouth, both primary and secondary; also the causative relation of oral infection to disease elsewhere in the body. While the author has generously quoted Black, Rosenow, D. J. Davis, Talbot and a few other noted American authors, he has not discriminated so wisely in the choice of some others to whom he has given greater preference. Billings' writings on secondary infections are not mentioned. Noyes' work on histology also is not mentioned and this omission seems strange, since Noyes demonstrated that the chain of lymphatics in the peridental membrane. The author strangely speaks of Vincent's angina of the gums. Vincent's angina is not a disease of the gums. Angina is from angio, a prefix indicating a relation with a vessel, usually a blood vessel. Vincent's angina, in medical and other dictionaries, is defined as "a disease of the throat similar to diphtheria but occasioned by a different microbe." Although much space is given to "trench mouth" (Vincent's angina, used synonymously), no mention is made of the fact that in an article published in the *Dental Review* (Chicago), 1906, this disease was first described and there named "acute ulcerous gingivitis." Later, Tunnicliff demonstrated that the fusiform bacillus and spirillum was the organism that causes the disease. The author condemns hydrogen peroxid in the treatment of "trench mouth." Since the organism causing this disease is an anaerobe, it seems that the free oxygen liberated by the application of hydrogen peroxid would make it the medicament of choice, and its value, in this connection, has been positively demonstrated. On page 18 the author says, "Films made from the interdental spaces . . . show no signs of pus cells." This statement will confuse the American reader who thinks of films as dental roentgenograms. What the writer means is smears for microscopic examination. Favorable mention is made of the use of vaccines in the treatment of primary oral infections and secondary diseases in other parts due to these infections. Their use for such conditions was generally abandoned in America some years ago, since they proved to be unsatisfactory. Neoplasms of the mouth are treated in the conventional manner; early recognition and surgical removal are very properly recommended. The more modern treatment of pyorrhea alveolaris, or, as the author prefers to name this disease, "periodontitis," is not included; that is, the elimination of the pockets by cutting back the gums to the bottom of the pockets. The book is recommended to those who do not possess an extensive library and to those who need a ready reference work to oral diseases.

Outlines of Medical Zoölogy, with Special Reference to Laboratory and Field Diagnosis. By Robert W. Hegner, Professor of Protozoölogy, Department of Medical Zoölogy, School of Hygiene and Public Health, the Johns Hopkins University; William W. Cort, Associate Professor of Helminthology, Department of Medical Zoölogy, School of Hygiene and Public Health, the Johns Hopkins University, and Francis M. Root, Associate in Medical Entomology, Department of Medical Zoölogy, School of Hygiene and Public Health, the Johns Hopkins University. Cloth. Price, $2.40. Pp. 175, with illustrations. New York: The Macmillan Company, 1923.

This book is the result of the revision and enlargement of a previous bulletin of the same authors entitled "Diagnosis of Protozoa and Worms Parasitic in Man." The material is admirably selected, and the book bears on every page the impress of personal knowledge of the methods described. It is intended to be of use to public health officers, students and physicians, especially those in tropical or semitropical countries. It will undoubtedly fulfil this purpose better than any other book of its size in existence. The descriptions are clear and concise, and the illustrations really illustrative. On page 129 the authors appear to take a position regarding the transmission of disease by so-called "filth flies" that is, perhaps, ultraconservative, but it is better so than to endorse the extravagant statements one sometimes finds in works of this sort. The value of the work for physicians would be somewhat increased by the inclusion of a little more material and additional references on the pathogenic relations of certain forms. The paragraphs on *Balantidium* (page 52), for example, leave one up in the air as to the significance of this form. A reference or two would help. It is refreshing to take up a book that is not padded, and is both clear and accurate.

Lehrbuch der Nervenkrankheiten für Aerzte und Studierende. Von H. Oppenheim. Bearbeitet von R. Cassirer, K. Goldstein, M. Nonne und B. Pfeifer. Seventh edition. Paper. Volume 1, pp. 923, with 323 illustrations. Volume 2, pp. 927-2316. Berlin: S. Karger, 1923.

Hermann Oppenheim died, May 23, 1919. The sixth edition of his justly celebrated textbook appeared in 1913. During the last decade, neurology has made notable advances in many directions, some of them almost epochal in character. The task of bringing this book up to date has been undertaken by Cassirer, a pupil and colleague of Oppenheim, with the assistance of Goldstein, Nonne and Pfeifer. The new edition is materially larger, and has been modified both by correction of older views and by the addition of much that is new. The enlargements are especially noticeable in the articles that deal with war injuries, epidemic encephalitis and the extrapyramidal syndromes. The references to current literature, as in earlier editions, are exhaustive. The original style and wording have been preserved wherever possible, and the success of the revision can probably be stated no more appreciatively than by saying that the original standards have been fully maintained. Even more than before, the book is a monumental work of reference that will be welcomed by every neurologist. Its size and thoroughness, unfortunately, preclude it from consideration as a textbook for students or general physicians.

Laboratory Manual of Biological Chemistry, with Supplement. By Otto Folin, Hamilton Kuhn Professor of Biological Chemistry in Harvard Medical School. Third edition. Cloth. Price, $3. Pp. 301. New York: D. Appleton & Co., 1922.

This book needs no introduction to the medical profession. The analytic methods described in some instances not only bear the author's name but have come into general use. New methods are given in this edition for phosphates, sulphates, total base, sugar and amino-acids in urine, and for chlorids and amino-acids in blood. The methods for lipoids, uric acid and for sugar in blood have been improved. The even pages of this book are blank pages for notes. There are few illustrations. The discussions are short and pointed. The diction is clear. The author "rings out" the old Trommer and Fehling tests for sugar. They are only of historical interest, he says. Benedict's reagent is more sensitive to dextrose than Fehling's. It is not reduced by creatinin or uric acid, and little if at all by chloroform, which is often added as a preservative to urine. The analytic methods for blood chemistry through which this book is best known have been noted repeatedly in The Journal.

Medicolegal

Physicians Competent to Give Opinions on Insanity

(Eckert v. State (Texas), 251 S. W. R. 804)

The Court of Criminal Appeals of Texas says that, on his trial for alleged homicide, defendant Eckert introduced as witnesses several physicians who had been practitioners of medicine for many years and who had had occasion to treat mental diseases, and who were familiar from reading and study with the rules and principles governing diseases of the mind. His counsel asked each of these physicians a hypothetic question or questions, in which he attempted to state to them the facts as testified to by the defense witnesses showing the acts, conduct and condition of the defendant for three days preceding the shooting, as reflected by the testimony for the defendant, and sought to elicit from each of the physicians his opinion, based on the assumption that the facts stated in the hypothetic question were true, as to whether or not the defendant was insane at the time he fired the fatal shot. On objection by the state, the trial court declined to permit the physicians to answer the question. In that this court thinks that the trial judge was in error.

This court has no desire to attempt to lay down rules for determining when a physician is an expert alienist and when not. This court does not think it possible to lay down hard and fast rules in such cases. Manifestly it would be difficult, and probably impossible, to procure physicians who spend all of their time in studying mental diseases, in every case in which the issue might be raised by testimony. The weight of such testimony is always for the jury, and it occurs to this court that the state may protect itself by cross-examination against immature or unsupported opinions given on such hypothetic cases.

In this court's opinion, one who has been a practitioner of medicine, is a graduate of recognized schools, and has had occasion in the course of his practice to observe and treat cases of mental disorders, should be permitted to give his opinion based on a hypothetic statement of the facts in testimony in a given case, as to the mental soundness of the accused at the time of the commision of the crime. Of course, if this may be done by one side, it may be done by the other; and, if the facts stated in such a question do not support the conclusion announced by such a witness, in this court's opinion the juries of the country may be trusted to understand that the final solution of the matter is for them. This court does not intend by what it has said to broaden the rules governing the admission of nonexpert opinions as to insanity, but it does believe it a safe rule to permit physicians such as those mentioned above to answer questions fairly embracing the testimony relied on as showing insanity.

Timeliness of Action on Warranty Against Scar from Treatment with Radium

(Crowford v. Duncan (Calif.), 215 Pac. R. 573)

The District Court of Appeal of California, Second District Division 2, says that this was not an action of tort; that is, it was not action for malpractice based on negligence. It was an action against a physician for the breach of an alleged oral agreement whereby he warranted that his radium treatments would not leave a permanent scar on the plaintiff's neck, she having consulted him with reference to swollen glands on the right side of her neck. At the close of her evidence the plaintiff was nonsuited on the ground that the statute of limitations of California barring in two years an action on an oral contract had run. On a motion for nonsuit, that view of the evidence must be taken which is most favorable to the plaintiff. Not only must all the evidence in favor of the plaintiff be taken as true, and all contradictory evidence, if any has been given, be disregarded, but, if either of several inferences may reasonably be made, that one must be adopted which is most favorable to the plaintiff. The evidence adduced in this case by the plaintiff, considered, as it must be, in the light most favorable to her, was sufficient to make out a case for the jury as to the existence of an oral contract of warranty.

The only serious question in the case was that which was concerned with the time when the plaintiff's cause of action accrued and the statute of limitations began to run. The general rule is that in all personal actions for the violation of an express or implied contract the statute begins to run from the date of the wrong—the breach of the contract. The question therefore was: When was the contract of warranty broken? The warranty related to a future event—the possible future development of a permanent scar—and the contract of warranty was broken when a reasonable person, circumstanced in all respects as the plaintiff was, and who had received such warranty as was given here could know with a reasonable degree of certainty that a permanent scar had developed as a result of the treatments. Throughout the treatments, and even after they had ceased, the defendant frequently assured the plaintiff that any disfigurement which might result from his use of the radium would disappear with the lapse of time. It might be that nothing which was said by the parties after the termination of the treatments could alter the terms of the contract of warranty which had been made in the course of their first conversation; but statements made by the defendant in subsequent conversations might be considered so far as they threw light on the original understanding and intention of the parties. . . .

The treatments began in May or June, and ended about Sept. 1, 1917. When they came to an end, the plaintiff had a deep running sore on her neck, caused by the treatment, and the defendant told her that she need not worry; that her neck was going to be all right, although it might take a year or so for it to heal; just give it time. It did not appear in the case when the sore healed. This action was commenced July 8, 1920; and the defendant, assuming that the sore had completely healed more than two years before the action was commenced, and further assuming that the plaintiff necessarily must have been aware as soon as the sore healed that her neck was permanently scarred, insisted that the cause of action must have arisen more than two years before the action was commenced. But the plaintiff, who presumably had no more knowledge of such matters than the ordinary layman possesses, and who had entrusted herself to the defendant's care, doubtless deferred to the physician's judgment, based on his years of professional experience in the use of radium as a therapeutic agent. She was justified in assuming that his judgment on such matters was probably correct if not infallible. There was justification for the inference that the contract which the defendant led the plaintiff to understand was the measure of her rights and of his obligations was a contract to the effect that if a scar made its appearance, time should be allowed to pass in order to ascertain whether or not it was to be permanent disfigurement. Whether such reasonable time as was contemplated by the warranty had elapsed more than two years before the commencement of the action was a question which should have been submitted to the jury, guided by proper instructions from the court. Wherefore it is held that the nonsuit was improperly granted. Hearing denied by the Supreme Court of California.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, *Rockefeller Institute for Medical Research, New York, Sec'y.*

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. V. C. Myers, New York Post-Graduate Medical School, New York, Sec'y.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

3: 487-597 (Sept.) 1923

Micro-Organisms Suggesting Bacillus Pneumosintes from Mouths of Man and Laboratory Animals. W. L. Holman and F. H. Krock, Stanford University, Calif.—p. 487.
Identification of Blood Meal of Mosquitoes by Means of Precipitin Test. G. C. Bull and W. V. King, Baltimore.—p. 491.
Blood Feeding Habits of Malaria Carrying Mosquitoes. W. V. King and G. G. Bull, Baltimore.—p. 497.
*Preferential Feeding Experiments with Anopheline Mosquitoes. G. G. Bull and F. M. Root, Baltimore.—p. 514.
*Effect of Different Temperatures and Humidities on Resistance of Rats to Pneumococcus Infection. C. McDowell, Baltimore.—p. 521.
Control of Hookworm Disease. XXX. Factors Involved in Migration of Hookworm Larvae in Soil. F. K. Payne, Baltimore.—p. 547.
*The Relation of Physiologic Age of Hookworm Larvae to Their Ability to Infect Human Host. F. K. Payne, Baltimore.—p. 584.

Feeding Experiments with Mosquitoes.—The strain of *Anopheles qandrimaculatus* with which Bull and Root experimented manifested no decided preference for man, horse or cow as hosts.

Effect of Temperature and Humidity on Resistance of Rats to Infection.—McDowell found that rats exposed for two weeks to a high temperature (83 F.) combined with a relative humidity between 44 and 72 per cent. are more resistant to an intraperitoneal injection of pneumococcus than are rats kept at medium temperatures. Compared with this optimum condition, high and probably low humidity and medium temperature are unfavorable conditions. Animals accustomed to a medium temperature (67-71 F.) showed a lowered resistance when changed to a high temperature (83 F.) immediately after a pneumococcus injection.

Age of Hookworm Larvae Affects Power to Infect.—Experimental infestations were produced by Payne in three human subjects with *Necator americanus* larvae and in six dogs with *A. caninum* larvae, in order to test the ability of larvae that had utilized nearly all of their nutritive material to infest the host as compared with the ability of young and well nourished larvae. Larvae were artificially aged by migrations under laboratory conditions. The experiments with *N. americanus* indicate that even the oldest larvae obtainable retained some power to infest, but this power was not so great as that possessed by the young larvae. The experiments with *A. caninum* confirmed the results of the experiments with *N. Americanus*. Evidence was obtained that a prior infestation may have some influence in rendering the establishment of a new infestation more difficult.

American Journal of Ophthalmology, Chicago

6: 805-880 (Oct.) 1923

Case of Chloroma. W. H. Roberts, Pasadena, Calif.—p. 805.
Eclipse Amblyopia. R. E. Wright and T. V. Maidu, Madras, India.—p. 812.
Congenital Total Bilateral Ophthalmoplegia. T. M. Li, Peking, China.—p. 816.
Visibility of Corpuscular Elements within Aqueous. R. Von Der Heydt, Chicago.—p. 822.
Better Surgery of Cataract Extraction. C. B. Meding, New York.—p. 825.
Relation of Focal Infections in Production of Ocular Disease. H. M. Langdon, Philadelphia.—p. 829.
Study of Ocular Movements in Horizontal Plane. E. J. George, J. A. Toren and J. W. Lowell, Chicago.—p. 833.
Measuring Deviation of Strabismic Eye on Stereoscopic Campimeter. R. I. Lloyd, Brooklyn.—p. 839.
Divulsion of Optic Nerve Due to Projectiles Passing Through Orbit Behind Globe. H. V. Würdemann, Seattle.—p. 842.

American Journal of Public Health, Detroit

13: 807-895 (Oct.) 1923

*Does Commercial Pasteurization Destroy Tubercle Bacilli in Milk? C. J. Bartlett, New Haven, Conn.—p. 807.
Regulation of Nuisances in American Colonies. E. C. Tandy, New York.—p. 810.
Simple Modification of Högyes Dilution Method of Preparing Antirabic Treatment. T. F. Sellers, Atlanta, Ga.—p. 813.
Relation of Midwife to Obstetric Mortality with Especial Reference to New Jersey. M. P. Rucker, Richmond, Va.—p. 816.
Distribution of Bacterium Coli in Feces. C. A. Darling, Medville, Pa.—p. 822.
Venereal Disease as Public Health Problem in Far East. R. W. Medelson, Bangkok, Siam.—p. 827.
Character of Moonshine Liquor. J. M. Doran and G. F. Beyer, Washington, D. C.—p. 831.
Value of Routine Dark Field Examinations of All Venereal Sores. A. M. Crance, Geneva, N. Y.—p. 835.

Destroying Tubercle Bacilli in Milk by Pasteurization.—According to Bartlett, pasteurization by maintaining the temperature between 142 and 148 F. for thirty minutes destroys the tubercle bacillus in milk. Specimens of raw milk taken from mixing vats holding from 300 to 1,200 quarts each showed the presence of tubercle bacilli by guinea-pig inoculation in 50 per cent. The relative frequency with which tubercle bacilli were found were greater in milk from the larger mixing vats than in that from the smaller mixing vats.

Annals of Surgery, Philadelphia

78: 433-560 (Oct.) 1923

*Management of Injuries to Cranium and Its Contents. J. O. Bower, Philadelphia.—p. 433.
*Cancer of Tongue. P. E. Truesdale, Fall River, Mass.—p. 461.
Pathology and Surgical Treatment of Leukokeratosis Linguae. C. G. Cumston, Geneva, Switzerland.—p. 469.
*Leukoplakia Buccalis. H. P. De Forest, New York.—p. 474.
Abscess of Tongue. A. O. Wilensky and J. Harkavy, New York.—p. 496.
Intercostal Thoracopuncture for Removal of Penetrating Projectiles in Lung. C. Jackson, Philadelphia.—p. 501.
*Resection of Stomach for Chronic Gastric and Duodenal Ulcer. R. Lewisohn, New York.—p. 507.
Recurrence of Inguinal Hernia After Operative Treatment. A. S. Morrow, New York.—p. 524.
Treatment of Webbed Fingers, Congenital or Acquired (Modeling Compound Dressing). G. M. Dorrance and J. W. Bransfield, Philadelphia.—p. 532.

Management of Injuries to Cranium.—In injuries to the cranium or its contents, Bower regards lumbar puncture with spinal fluid pressure observations as essential to proper management. In certain cases, withdrawal of fluid may so reduce intracranial pressure that operation may be avoided; in borderline cases it is a means of determining early the least degree of intracranial tension; blood pressure readings at definite intervals may accomplish this, in part, but there may be an increase in intracranial pressure and no corresponding increase in blood pressure. Cerebrospinal pressure observations are important before and after plastic operations on the skull. Finally, repeated examinations of the spinal fluid for microscopic blood are of importance in differentiating the less severe types of cerebral trauma.

Cancer of Tongue.—Four cases of cancer of the tongue are reported by Truesdale to show that cancer of the tongue, except in the aged, grows rapidly, invades the lymphatics early, and becomes hopelessly advanced in from six to nine months. The fatal delay is too often the result of ignoring a small sore for weeks or months. His patients were aged 70, 49, 57 and 51, respectively. The oldest patient lived more than twice as long as the average among patients who were not subjected to operation.

Leukoplakia Buccalis.—De Forest reports two cases in which the use of arsphenamin caused the growth to disappear without recurrence.

Resection of Stomach for Ulcer.—Lewisohn's experience with resection in gastric and duodenal ulcers comprises twelve cases with one death (mortality 8 per cent.). Ten patients are well at present, the interval since the operations varying from two months to three years. One patient (partial gastrectomy with button gastro-enterostomy) returned eight months after the operation suffering from a stenosis of the stoma. Eight patients were suffering from penetrating ulcers of the lesser curvature, four from pyloric and duodenal ulcers. The Billroth II operation was performed in ten cases, the Billroth I operation in two cases. The operative recovery was remarkably smooth, much smoother than in many cases of gastro-enterostomy. The Murphy button was used in the first six cases. In one of these the button fell into the stomach and had to be removed by subsequent gastrotomy.

Archives of Internal Medicine, Chicago

32: 483-646 (Oct.) 1923

- *Bacteriologic Observations on Acute Tonsillitis. Epidemiology and Susceptibility. A. L. Bloomfield and A. R. Felty, Baltimore.—p. 483.
- *Electrocardiographic Changes Following Occlusion of Left Coronary Artery. F. M. Smith, Chicago.—p. 497.
- *I. Effect of Strophanthin on Size of Normal and Abnormal Rabbit's Heart. G. F. Strong, Vancouver, B. C., and B. Gordon, Spokane, Wash.—p. 510.
- *II. Effect of Vigorous Exercise on Size of Normal and Abnormal Heart. B. Gordon, Spokane, Wash., and G. F. Strong, Vancouver, B. C.—p. 517.
- *Giardia Intestinalis Infection. E. Hollander, New York.—p. 522.
- *Gonorrheal Myelitis. F. M. Phifer and N. K. Forster, Chicago.—p. 530.
- Malignant Lymphoma (Hodgkin's Disease). Radiographic Study. L. R. Whitaker, Cambridge, Mass.—p. 538.
- *Clinical and Roentgenologic Study of One Hundred and Five Cases of Syphilis with Reference to Cardiovascular System. E. Steinfield, G. E. Pfahler and J. V. Klauder, Philadelphia.—p. 556.
- *Influenza Epidemic at Camp Devens in 1918. Pathology of Fatal Cases. S. B. Wolbach and C. Frothingham, Boston.—p. 571.
- Changes in Size and Shape of Hearts During Progress of Compensation. J. C. Friedman and S. Strauss, Chicago.—p. 601.
- *Influence of Pituitary Extract on Metabolism in Diabetes Insipidus. J. F. Weir, Rochester, Minn.—p. 617.
- *Gastroscopy in Thirty Cases of Gastric Neoplasm. R. Schindler, Munich, Germany.—p. 635.

Hemolytic Streptococci Cause Tonsillitis.—In a series of cases of acute follicular tonsillitis studied by Bloomfield and Felty the disease was uniformly due to the beta hemolytic type of streptococci. Following the acute disease, the organisms persist for an indefinite length of time in the tonsils. Evidence is presented to show that a large outbreak of tonsillitis was not a true epidemic, but a group of sporadic cases. Tonsillectomy confers a high degree of protection against acute streptococcic infection of the lymphoid tissue of the throat. A certain number of persons in a group seem "naturally" insusceptible or relatively insusceptible to tonsillitis. Tonsillitis is not, as a rule, an autogenous infection but occurs in people not already carriers of hemolytic streptococci.

Electrocardiographic Changes Following Occlusion of Left Coronary.—Smith's report is based on the electrocardiographic findings with eleven patients. In one case, the descending branch of the left coronary artery was ligated for the repair of a self-inflicted stab wound of the heart. The remaining ten patients had typical clinical manifestations of coronary artery occlusion. In two cases the diagnosis was verified at necropsy. Eight patients recovered from the attack; the character and duration of the cardiac pain and the subsequent clinical course in these cases were as characteristic of coronary closure as in those in whom the diagnosis was checked by necropsy. Experimental and clinical observations seem to justify the belief that the electrocardiograph may be employed to advantage in the diagnosis of coronary thrombosis in man. It is predicted that a large percentage of those who have an occlusion of the left coronary artery will show significant changes in the electrocardiogram within the first few days after the cardiac accident. In some instances, the alteration in the electrocardiogram may persist for weeks. Changes in the T deflection and a decrease in the amplitude of the Q R S group are the most constant findings. The former is apparently dependent on the formation of an area of infarction in the apical region of the left ventricle. The latter has been associated with more extensive and disseminated changes in the myocardium.

Effect of Strophanthin on Size of Heart.—Strophanthin, given intravenously in doses comparable to those used clinically, Strong and Gordon found, causes a definite decrease in size of the rabbit's heart. This decrease is most marked in cases of experimentally produced myocarditis with cardiac dilatation. It also occurs, to a certain extent, in normal rabbits. The heart usually begins to return to normal size at the end of fifteen minutes and always recovers completely after two hours.

Effect of Exercise on Heart.—Normal rabbits were exercised by Gordon and Strong to complete physical exhaustion. The result in every instance was a definite decrease in the size of the heart. Six animals in which experimental myocarditis had been produced responded to overexertion in a similar manner. Although the rabbits had been observed for only a comparatively short time, there was no evidence that acute overexertion influenced the general condition of the animals.

Giardia Intestinalis Infection.—In the routine examination of the duodenal contents in 170 residents of New York City, nine cases of *Giardia intestinalis* infestation were found by Hollander. No symptoms attributable to this infestation could be established in the cases presented. Three patients were treated with three arsphenamin injections in the usual doses at from three to five day intervals. This procedure was not successful in eradicating the infestation in two cases. In one case, in which the injections were alternated with duodenal lavage with magnesium sulphate, the patient remained free from infestation during fourteen examinations of the duodenal contents over a period of six months.

Gonorrheal Myelitis.—To the twenty-nine cases of myelitis following gonorrheal urethritis on record Phifer and Forster add two cases. It was impossible to prove definitely that the gonococcus was the etiologic factor in these cases from the standpoint of laboratory findings, but the evidence from a clinical standpoint was extremely strong .

Effect of Syphilis on Cardiovascular System.—Of a group of 105 male syphilitic patients studied by clinical methods, twelve were found to be suffering from aortic or myocardial disease. Of the aortic lesions, one was diagnosed as aortitis, two as aortic dilatation, six as aortic dilatation and insufficiency and two as aneurysm. Of sixty-three patients studied by Steinfield et al. by roentgenologic methods, aortic disease (including aneurysm) was noted as being definitely present in nineteen. The higher percentage of patients with aortic disease discovered by roentgenologic examination is in accord with pathologic studies reported by others and reviewed in this report. The so-called Wassermann-fast syphilitic patient is discussed with particular reference to cardiac syphilis. Of a total number of twenty-five patients with neurosyphilis, there was an associated aortic disease in four. The relative infrequency of an active syphilitic process involving one or more systems in the same patient is discussed.

Cause of Epidemic Inflenza.—Wolbach and Frothingham conclude from their study that the cause of the influenza epidemic has not been established. The influenza bacillus is one of the secondary invading organisms. The virus that causes the epidemic, in addition to the general febrile reaction, the general toxic symptoms and involvement of the upper respiratory tract, produces in the lungs in a certain percentage of the cases lesions that are pathognomonic of this disease.

Effect of Pituitary Extract on Metabolism in Diabetes Insipidus.—Observations made by Weir following the administration of pituitary extract to two patients with diabetes insipidus confirm previously recorded findings of a marked decease in urinary output with corresponding increase in specic gravity and molecular concentration, coincident with a temporary disappearance of the distressing clinical symptoms.

Value of Gastroscopy.—Four benign and twenty-six malignant gastric tumors were demonstrated by Schindler by gastroscopy. Of the four benign tumors two were fibromyomas, one solitary mucous polyp and one polyposis. Of the twenty-six malignant tumors, one was a diffuse lymphosarcoma and twenty-five were carcinomas. Ten were confirmed by biopsy, eleven by necropsy, two by biopsy and necropsy. The findings were always in full accord. In three cases, early diagnosis of carcinoma was possible.

Boston Medical and Surgical Journal

189: 581-628 (Oct. 25) 1923

- *Ptosis of Heart and Diaphragm. Important Points for Determination in Chronic Patient. J. E. Goldthwait, Boston.—p. 581.
- *Empyema. Suggestion for New Method of Treatment. Report of Case. Review of Literature. H. S. Penn, Lawrence, Mass.—p. 590.
- New Nasal Cartilage Support ("Distender;" "Expander"). A. C. Victor, Boston.—p. 592.
- Gangrene of Foot as Complication of Typhus Fever and Its Treatment. S. Kagan, Boston.—p. 593.

Ptosis of Heart and Diaphragm.—Goldthwait calls attention to certain easily demonstrable changes in the position of the heart and in the position and movement of the diaphragm from those which are considered normal; he believes that these features are of importance in causing disturbances of circulation and general physiology, especially of the abdominal viscera.

Horse Serum Irrigations for Empyema.—If irrigations are to be employed at all in empyema, Penn has found that normal horse serum is the ideal agent, for both acute and chronic cases. He has used it in a number of cases with good results. The serum meets all physiologic requirements. It is nonirritating, germicidal and removes adhering fibrin. Healing occurs promptly. Whenever reaccumulation of pus occurs with signs of absorption, Penn says immediate operation is indicated. Prolonged inadequate drainage is the chief etiologic factor in chronic empyema. When thoracotomy is indicated, rib resection at the most dependent portion of the cavity is the operation of choice.

Illinois Medical Journal, Oak Park

44: 229-304 (Oct.) 1923

Benign Tumors of Gastro-Intestinal Tract. D. A. Brown, Peoria.—p. 249.
Myocardial Deficiency from Surgical Standpoint. J. L. Yates, M. F. Robers and R. E. Morter, Milwaukee.—p. 253.
Hypertrophic Pyloric Stenosis with Large Multiple Erosions in Adult. W. A. Brams and I. Pilot, Chicago.—p. 268.
Adhesions of Appendix Associated with Intestinal Obstruction. J. M. Mora, Chicago.—p. 273.
Subacute Bacterial Endocarditis. W. L. Bierring, Des Moines, Ia.
Nitrous Oxid-Oxygen-Ether Anesthesia in Tonsil Operations. F. M. F. Meixner, Peoria.—p. 282.
Penetrating Injuries to Eye in Industrial Operations. F. Allport, Chicago.—p. 283.
Reminiscences of Forty Years of Medical Practice in Jo Daviess County, Illinois. I. C. Smith, Stockton.—p. 288.
Hematuria with Particular Reference to Essential Hematuria. H. C. Rolnick, Chicago.—p. 292.
Medical Fraternities of Chicago. W. A. N. Dorland, Chicago.—p. 294.
Medical Men Who Have Attained Fame in Other Fields of Endeavor. W. M. Thompson, Chicago.—p. 296.

Johns Hopkins Hospital Bulletin, Baltimore

34: 321-360 (Oct.) 1923

Experimental Studies Concerning Site of Origin of Bilirubin. A. R. Rich, Baltimore.—p. 321.
Clinical Study of Acute Streptococcus Infection of Pharyngeal Lymphoid Tissue (Acute Follicular Tonsillitis). A. R. Felty and A. B. Hodges, Baltimore.—p. 330.
*Sickle Cell Anemia. J. G. Huck, Baltimore.—p. 335.
Clinical Epidemiologic Study of Acute Tonsillitis and Acute Upper Respiratory Infections. A. B. Hodges, Baltimore.—p. 344.
Superventilation and Carbon Dioxid Elimination. J. T. King, Jr., and V. B. Cross, Baltimore.—p. 349.
Substitute (Black Tea) for Acid Hematin as Standard in Sahli's Hemoglobinometer. L. D. Felton, Baltimore.—p. 357.

Sickle Cell Anemia.—Fourteen cases of sickle cell anemia are reported by Huck. Eleven of these cases occurred in three generations of one family. The male transmitted the disease in the first generation, but in the second generation the disease was transmitted both by males and females, and in another genealogic tree by both members of the first generation. Apparently, the "sickle cell" condition in man is inherited according to the mendelian law for the inheritance of a single factor. One interesting feature in this inheritance is the fact that the sickle cell condition is dominant over the normal condition. The disease may be suspected after superficial examination. The blood picture is sufficiently characteristic, the anemia with the presence of sickle or crescent shaped cells, and the characteristic sickling of all cells in the fresh wet preparations after twenty-four hours. Syphilis, tuberculosis and hemolytic anemias should be eliminated by appropriate examinations. In the symptomless and mild cases the prognosis is excellent, but in the severe forms it is distinctly unfavorable on account of the susceptibility of these patients to intercurrent infections, especially pneumonia and tonsillitis. They seldom live beyond the age of 30. The treatment consists of simple hygienic measures, with amplified diet and rest in bed. Medicinal therapy consists of the administration of iron in adequate doses, preferably in the form of Blaud's pills (soft mass), 5 grains, three times daily, after meals. Arsenic may be given in the form of Fowler's solution or intramuscularly in the form of sodium cacodylate. The disease has never been cured, but with treatment and rest the relapses are shortened and the remissions are made longer. The patients should never be allowed to perform hard physical work.

Journal of Biological Chemistry, Baltimore

57: 633-845 (Oct.) 1923

*Metabolism of Fixed Base During Fasting. J. L. Gamble, G. S. Ross and F. F. Tisdall, Baltimore.—p. 633.
Synthesis of Hippuric Acid in Animal Organism. W. H. Griffith and H. B. Lewis, Ann Arbor, Mich.—p. 697.
Preparation of Insulin. C. H. Best and D. A. Scott, Toronto.—p. 709.
*Copper as Constituent in Woman's and Cow's Milk. Its Absorption and Excretion by Infant. A. F. Hess, G. C. Supplee and B. Bellis, New York.—p. 725.
Influence of Diet During Preexperimental Period on Susceptibility of Rats to Rickets. A. F. Hess, M. Weinstock and E. Tolstoi, New York.—p. 731.
*Ether Anesthesia. P. A. Shaffer and E. Ronzoni, St. Louis.—p. 741.
Ether Anesthesia. E. Ronzoni, St. Louis.—p. 761.
Chemical Study of Several Marine Mollusks of Pacific Coast. Liver. P. G. Albrecht, Stanford University, Calif.—p. 789.
Anthocyans in Norton and Concord Grapes. Chemistry of Grape Pigments. R. J. Anderson, Geneva, N. Y.—p. 795.
*Urinary Acidity. N. R. Blatherwick and M. L. Long, Santa Barbara, Calif.—p. 815.
*Chemistry of Hemoglobin. R. M. Ferry, Boston.—p. 819.

Metabolism of Fixed Base During Fasting.—The data presented by Gamble, Ross and Tisdall were obtained from four epileptic children who were subjected to fasting as a therapeutic measure. The factors concerned in acid-base metabolism are particularly accessible to measurement during fasting.

Copper as Constituent of Woman's and Cow's Milk.—Investigations made by Hess, Supplee and Bellis show that cow's milk and woman's milk regularly contain copper, and that in infants and adults copper is absorbed from the alimentary tract; this was proved by its constant presence in the urine.

Ether Anesthesia.—A modification of the Nicloux method for the determination of ether as presented by Shaffer and Ronzoni consists of absorption in sulphuric acid, dilution of the acid to 40 per cent., and oxidation to acetic acid by the addition of bichromate, the excess of which is determined by iodometric titration. The accuracy of the method for the analysis of air, water and blood is ± 2 or 3 per cent.

Increased Acidity of Urine After Eating Prunes and Cranberries.—Data are presented by Blatherwick and Long to show that the increased acidity of urine after eating prunes and cranberries is produced by hippuric acid. The greater portion of this hippuric acid is derived from sources other than benzoic acid.

Preparation of Hemoglobin.—A method of preparing pure hemoglobin is described by Ferry. Crystallization is induced, without recourse to chemical means, solely by the aid of the Sharples' centrifuge and the principle of dialysis of reduced pressure. A method for determining the freedom of proteins from each other and their separation is also described.

Journal of Infectious Diseases, Chicago

33: *269-367* (Oct.) 1923

Immunologic Alteration of Bacterium Typhosum and of Bacillus Pestis-Caviae by Growth in Sterile Fixation Abscesses. E. E. Ecker and E. Megrail, Cleveland.—p. 269.
Studies on Thermal Death Time of Spores of Clostridium Botulinum. G. S. Burke, San Francisco.—p. 274.
Influence of Cholesterol on Pagocytosis. R. Tunnicliff, Chicago.—p. 285.
Toxin Production and Signs of Spoilage in Commercially Canned Vegetables and Fruits Inoculated with Detoxified Spores, of Bacillus Botulinus. P. Cchoenholz, J. F. Esty and K. F. Meyer, Washington, D. C.—p. 289.
*New Method for Increasing Yield of Therapeutic and Diagnostic Serum. J. Freund, Boston.—p. 328.
Relation of Bacterium Pullorum to Hatchability of Eggs. F. R. Beaudette, L. D. Bushness and L. F. Payne, Manhattan, Kan.—p. 331.
*Clasmatocytes and Resistance to Streptococcus Infection. V. F. P. Gay and L. F. Morrison.—p. 338.

Increasing Yield of Therapeutic and Diagnostic Serum.—By separating the blood cells before the plasma clots, Freund says, a large amount of serum can be obtained free from hemoglobin. In comparison with the method in which repeated withdrawals of serum are made over a period of eight days, it has been found possible to obtain from 10 to 95 per cent. greater yield of serum free from hemoglobin. The variation in the yield depends on whether the animal has been bled before. In the case of animals which have been bled but once, the difference may be as much as 95 per cent.

Clasmatocytes and Resistance to Streptococcus Infection.—The main thesis put forth by Gay and Morrison is that the "clasmatocytes" or "tissue macrophages" are in large part, if not entirely, responsible for the natural resistance of rabbits to experimental streptococcus infection; in spite of the obvious presence of polymorphonuclear cells, which have so long been held entirely responsible for the cellular protective mechanism in acute infections (Metchnikoff). Clasmatocytes seem likewise implicated in both active and passive acquired streptococcus immunity, but the evidence as to the exact mechanism is as yet incomplete. Clasmatocytes are now identified by modern vital staining methods and can readily be differentiated from fibroblasts, serosal cells and adult endothelium. The authors have confirmed and extended the observations that the cells normally present in both pleural and peritoneal exudates are nearly all clasmatocytes. They have estimated the actual number of clasmatocytes present in the pleural cavity of the rabbit.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

22: 139-214 (Oct.) 1923

*Studies on Vomiting. R. A. Hatcher and S. Weiss, New York.—p. 139.
Permeability of Capillaries as Influenced by Various Drugs. F. P. Underhill and J. Epstein, New Haven, Conn.—p. 195.

Location of Vomiting Center and Effect of Certain Drugs in Causing Vomiting.—Vomiting was induced by Hatcher and Weiss after destruction of the quadrigeminal bodies, the cerebellum and the area described by Thumas as the vomiting center in the cat, and of the latter area in the dog. Vomiting was not induced after destruction of the sensory nuclei of the vagi in cats, nor after destruction of the nucleus of one side in any of six experiments on cats and one experiment on a dog, but it was induced in one such experiment in which the destruction of the nucleus may have been incomplete. The results of experiments indicated that the sensory nuclei of the vagi are essential for vomiting in the higher mammals, however it is induced (possibly with exceptions so rare that they do not enter into this discussion). Hatcher and Weiss feel justified, therefore, in stating that the vomiting center is embraced within the sensory nuclei of the vagi. Twenty-seven substances were used in thirty-five experiments on dogs and cats in which ninety-seven applications were made to the floor of the fourth ventricle just above the obex. Thirteen of the substances induced vomiting in dogs and one drug caused vomiting in cats. The vomiting center is sensitive to the depressant action of apomorphin and other substances, and when moderately depressed in this way it is not stimulated by the application of other substances that commonly increase its excitability, but it is still capable of being excited reflexly from the stomach. The intravenous injection of a relatively small dose of mercuric chlorid induces vomiting, probably reflexly from the heart. The authors were unable to induce vomiting by the local application to the center of pilocarpin, quinin, tartar emetic, veratrin, or any of the digitalis bodies (previously reported), all of which induce vomiting in the eviscerated dog, nor was vomiting caused by the application of cocain, caffein, or atropin, toxic doses of which induce vomiting in the intact animal. These experiments furthermore proved that there is a defecation center in the floor of the fourth ventricle.

Kentucky Medical Journal, Bowling Green

21: 517-584 (Oct.) 1923

Surgery: Why, When and How? E. M. Howard, Harlan.—p. 526.
Rural Doctor. W. L. Tyler, Curdsville.—p. 528.
Inunction Treatment of Syphilis. E. R. Palmer, Louisville.—p. 533.
Tuberculosis of Hip Joint. M. H. Walker, Owensboro.—p. 542.
Uterine Fibroma Weighing Thirty-Five Pounds. C. Farmer, Louisville.—p. 543.
Cancer. G. A. Hendon, Louisville.—p. 543.
Prophylaxis and Treatment of Eclampsia. E. Speidel, Louisville.—p. 546.
Symptoms of Hypophyseal Tumor. A. O. Pfingst, Louisville.—p. 548.
Pulse, Temperature and Tongue. F. D. Haston, McAffee.—p. 557.
Rabies. C. H. Linn, Kuttawa.—p. 558.
Heart Block. E. F. Horine, Louisville.—p. 559.
Significance of Extreme in Blood Pressure. B. S. Rutherford, Bowling Green.—p. 565.
Adenomyoma of Uterus. Case Report. L. Frank, Louisville.—p. 568.
Treatment of Empyema by Closed Method. W. C. Simmons, Smith's Grove.—p. 572.
Cases of Pyloric Ulcer in Negro and Gastric Ulcer. J. G. Sherrill, Louisville.—p. 577.

Laryngoscope, St. Louis

33: 565-656 (Aug.) 1923

Significance of Pneumatization of Middle Turbinate. H. L. Baum, Denver.—p. 565.
Presentation of Case, Four Years After Operation for Large Subdural Cyst of Frontal Lobe. W. G. Shemeley, Jr., Philadelphia.—p. 575.
Presentation of Theory Explaining Phase of Tinnitus Aurium. O. A. Lathrop, Boston.—p. 582.
Modification of Direct Laryngoscope. A. E. Goodloe, Chattanooga, Tenn.—p. 585.
Waring Suction Tonsillectomy. J. B. H. Waring, Blanchester, Ohio.—p. 587.
Mechanism of Pain as Seen in Otologic Cases. L. Hubert, New York.—p. 596.
Case of Carcinoma of Larynx: Laryngofissure. H. S. Birkett, Montreal.—p. 609.
Modified Atomizer Tip for Specialists. A. W. Proetz, St. Louis.—p. 612.
Case of Maxillary Sinusitis in Child, with Fatal Issue. J. A. Morgan, Honolulu, T. H.—p. 614.
Case of Chronic Mastoiditis with Extensive Pathology. Operation. Recovery. F. M. Shook, Oakland, Calif.—p. 615.
Cerebrospinal Rhinorrhea. Report of Case. J. E. Loftus, Philadelphia.—p. 617.

Medicine, Baltimore

2: 171-348 (Aug.) 1923

Edema. L. Loeb, St. Louis.—p. 171.

Missouri State Medical Association Journal, St. Louis

20: 335-366 (Oct.) 1923

*Secondary Operations for Thyrotoxicosis. E. G. Blair and K. Kinard, Kansas City.—p. 335.
*Essential Factors in Treatment of Intestinal Obstruction. T. G. Orr and R. L. Haden, Kansas City.—p. 340.
Value of Roentgen-Ray Measurements in Cardiac Examination. D. S. Dann, Kansas City.—p. 343.
Limited Practice and Its Control. What of the Future? H. E. Pearse, Kansas City.—p. 348.
Accidental Intraspinal Injection of Nine Grains of Novocain. B. Williams, Joplin.—p. 354.

Secondary Operations for Thyrotoxicosis.—The views of Blair and Kinard are that hyperthyroidism is the result of the secretion from hyperplastic goiters; that the amount of hyperplasia determines the amount of hyperthyroidism. The type of poison which causes the marked cardiac muscular degeneration and deterioration of the central nervous system, if not of the entire organism, is dependent on altered thyroid secretions. These altered secretions may be due to degeneration of the hyperplastic goiter with formation of leukomains, or again to some action producing alteration of function in other endocrines, the chief of which are the suprarenals. The secondary effects may definitely be deferred by not waiting for involvement of the entire gland, the authors therefore recommend earlier but less radical operation. The amount of gland to be removed cannot be determined by rule of thumb; it depends entirely on the experience of the operator.

Treatment of Intestinal Obstruction.—In treating acute intestinal obstruction, Orr and Haden stress the point that mechanical obstruction, dehydration, starvation and toxemia should be emphasized as the four phases of the pathologic process. The mechanical obstruction should be relieved as early as possible, but the other three phases should be carefully considered in conjunction with its relief. Dehydration should be overcome by the administration of 3,000 c.c. or more of liquid in each twenty-four hours during the acute illness. The starvation should be met by the daily administration of glucose equivalent to or in excess of 1,680 calories per day, which is the minimum for an adult of 70 kg. at rest. This may be given in the vein, under the skin or by rectum. The toxemia, which is the most important factor of the disease, may be combatted by giving sodium chlorid in sufficient quantity to maintain the chlorids of the blood and urine at a normal level. This may be done by the subcutaneous injection of a 3 per cent. solution.

New York Medical Journal and Medical Record

118: 469-532 (Oct. 17) 1923

Has Adrenin Any Physiologic Value in Organism? N. Pende, Messina, Italy.—p. 469.
Case of Hypopituitarism with Epilepsy. H. Tucker, Brooklyn.—p. 475.
Preadolescent Gigantism with Precocious Puberty in Brothers. N. M. Macneill, Philadelphia.—p. 478.
Roentgen-Ray Therapy of Thyroid. J. G. Williams, Brooklyn.—p. 480.
Congenital Total Hemihypertrophy. A. C. Reed, San Francisco.—p. 483.
Newer Aspects of Roentgenotherapy. C. Eastmond, Brooklyn.—p. 484.
Cancer of Breast. Radiotherapy. M. J. Sittenfield, New York.—p. 487.
*Comparison of Wassermann and Kahn Tests in Three Hundred and Twenty-Nine Cases. J. F. Anderson and E. E. Fischer, Trenton, N. J. —p. 490.
Urography. B. H. Nicholas, Cleveland.—p. 492.
*Oral Infection in Relation to Health. M. J. Synnott, Montclair, N. J. —p. 494.
Death by Electricity. A. H. Werner, New York.—p. 498.
Subcutaneous Visceral Injuries. H. B. Schoenberg, New York.—p. 500.
Social and Public Health Aspects of Gonorrhea Problem. A. N. Thomson, New York.—p. 504.
*Comparative Study of Results Obtained by Counting Specimens of Blood with Einhorn-Laporte and Thoma-Zeiss Methods. H. A. Rafsky, New York, and W. Spigel, Norfolk, Va.—p. 506.
Glandular Dysfunctions in One Family. J. Baldwin, New York.—p. 508.

Comparison of Wassermann and Kahn Tests.—Kahn tests were performed by Anderson and Fischer parallel with the Wassermann reaction on 177 spinal fluids. The tests were performed in the same way as the serum tests, except that 0.6 c.c. of spinal fluid was used. These also were from syphilitics and from new admissions at the hospital—in fact from some of the same people from whom the serum came. There was agreement between the results of the tests in 68.3 per cent. only. In the disagreements it was the Kahn test that was weaker or negative. This work has convinced the authors that the Kahn test has great possibilities of becoming a simpler, more direct, more readily standardized method than the Wassermann test for serologic diagnosis of syphilis. But it must be thoroughly worked out and tried, before it can replace the Wassermann test.

Oral Infection and Health.—Synnott urges that prompt dental intervention should be advised whenever decay is detected in a child's teeth.

Counting Blood Cells by Einhorn-Laporte Method.—By comparing the Einhorn-Laporte method of counting blood cells with that of Thoma-Zeiss, Rafsky and Spigel found that the Einhorn-Laporte method is rapid, accurate and convenient. It can be carried out without a special blood counting apparatus. The differential count can be made from the same specimen at the same time.

Northwest Medicine, Seattle

12: 337-380 (Oct.) 1923

*Relation of Neuropsychiatric States to Early Status Thymicolymphaticus. W. Timme, New York.—p. 337.
*Vertebral Lesions Causing Spinal Cord Symptoms. P. Bassoe, Chicago. —p. 342.
Blood Chemistry in Study of Nephritis and Toxemias of Pregnancy. E. H. McLean, Oregon City, Ore.—p. 345.
Clinical Importance of Vital Capacity of Lungs. F. W. Peabody, Boston.—p. 350.
Surgical Treatment of Persistent Thyroglossal Duct. E. O. Jones, Seattle.—p. 353.
Legitimate Error in Diagnosis. W. C. MacCarty, Rochester, Minn.—p. 357.
Infection of the Antrum of Highmore. R. E. Golden, Walla Walla, Wash.—p. 359.
Case of Melanosarcoma of Choroid. E. E. Maxey, Boise, Idaho.—p. 361.
Autogenous Serum Treatment of Gonorrheal Ophthalmia After Barrage Doses of Vaccine. E. O. Houda and A. E. Hillis, Tacoma, Wash.—p. 363.

Status Thymicolymphaticus.—In these cases Timme says a judicious use of combinations of sodium iodid, thyroid and pituitary extract and, perhaps, to a less extent, of some form of suprarenal gland substance will produce marked improvement in all directions, and will show distinct gains in the measurable laboratory criteria. There will result a heightened blood sugar content, a lowered coagulation time, and more nearly normal differential white cell count. The dyspnea, cardiac distress, fatigability and circulatory disturbances all improve. With their improvement the patient's mental state becomes more stable and he more readily adjusts himself to his environment; his depression leaves. The improvement is not continuous but is stepladder fashion. A few weeks of betterment are succeeded by a week or more of stationary or even retrogressive character and he must be warned of this in advance to counteract the discouragement that otherwise might follow. But the upward tendency predominates markedly and he soon finds himself able to cope with his problems. Visceroptosis, pes planus, backache and other special symptoms must be treated, in addition to the above general indications, by special methods.

Vertebral Lesions Causing Spinal Cord Symptoms.—The subjects discussed by Bassoe are: inflammations of the vertebrae themselves, such as purulent osteomyelitis, tuberculous spondylitis, arthritis of the spine; vertebral tumors and malformations of the spine.

Oklahoma State Medical Association Journal, Muskogee

16: 355-382 (Nov.) 1923

Surgery of Tonsil with Pulmonary Abscess as Sequel. H. C. Todd, Oklahoma City.—p. 355.
Eye Injuries. Case Reports. J. C. MacDonald, Oklahoma City.—p. 358.
Industrial Ophthalmology. W. A. Huber, Tulsa.—p. 360.
Facial Deformities as Result of Adenoids. H. Price, Tulsa.—p. 361.

Public Health Journal, Toronto

14: 435-482 (Oct.) 1923

Industrial School for Epileptics and Feebleminded. A. J. Morphy.—p. 435.
Is Nationalization of Medical Profession Desirable? J. H. Mullin.—p. 439.
Diphtheria Mortality. R. George.—p. 450.
Kahn Precipitation Test in Public Health Laboratory. H. K. Detweiler. —p. 464.

South Carolina Medical Association Journal, Greenville

19: 605-636 (Oct.) 1923

Legitimate Use of Suggestion in Practice of Medicine. J. B. Townsend, Anderson.—p. 606.
Tumors of Pituitary Gland. J. S. Horsley, Jr., Richmond, Va.—p. 609.
Birth Control vs. Abortion. F. J. Carroll, Summerville.—p. 612.
Urologic Diagnosis. N. B. Edgerton, Columbia.—p. 616.

Southern Medical Journal, Birmingham, Ala.

16: 737-824 (Oct.) 1923

Ileocolic Stasis. S. K. Simon, New Orleans.—p. 737.
Relation of Gastro-Enterology to Other Specialties. A. W. Calloway, Asheville, N. C.—p. 742.
Development of Pediatrics in South. E. A. Hines, Seneca, S. C.—p. 746.
Group Practice in Pediatrics. F. H. Richardson, Black Mountain, N. C. —p. 749.
Mental Disorders. W. C. Ashworth, Greensboro, N. C.—p. 754.
*Pneumonia Complicating Neurosyphilis. Case Report. R. M. Pollitzer, Charleston, S. C.—p. 757.
Twilight Zone of Diagnosis. W. H. Lewis, Rome, Ga.—p. 759.
Swimming Pool Sanitation. M. Z. Bair, Little Rock, Ark.—p. 764.
Cost Equivalent System as Applied to Local Health Work in North Carolina. K. E. Miller, Raleigh.—p. 766.
Relation of Public Health Nurse to All-Time Health Department. P. E. Blackerby, Louisville.—p. 772.
*Food Allergy as Cause of Irritable Bladder. W. W. Duke, Kansas City, Mo.—p. 776.
Amputation Above Elbow. B. A. Washburn, Paducah, Ky.—p. 779.
Rectal Examinations in Obstetrics. B. Lankford, Norfolk, Va.—p. 783.
Eclampsia. M. H. Newman, Oklahoma City.—p. 786.
Trained Nurse in Obstetrics. W. T. McConnell, Louisville.—p. 792.
Diagnosis of Acute Abdominal Conditions. J. M. Clack, Rockwood, Tenn.—p. 799.
Service with Loyalty. H. T. Ballantine, Muskogee, Okla.—p. 804.
Late Results Following Roentgen-Ray Treatment of Chronically Infected Tonsils and Adenoids. C. A. Waters, Baltimore.—p. 809.

Pneumonia Complicating Neurosyphilis.—Pollitzer reports the case of a girl who became ill suddenly, presenting nothing but signs and symptoms of a primary or secondary involvement of the central nervous system, along with an intestine cyanosis. Later the presence of some respiratory disease was suspected and then a pneumonia located. The pneumonia was atypical and lasted only four days at the most. After finding the consolidation it was thought that, perhaps, all the nervous involvement was secondary, there being, perhaps, an encephalitis. This could not have been correct, for it would not have explained the colloidal gold reaction and the positive Wassermann reaction on the blood and on the spinal fluid. On discharge, the diagnosis was recorded as pneumo [illegible] ith syphilitic encephalitis, because of the serolo [illegible].

Encephalitis, rather than some other lesion, accounted best for the vomiting, convulsions, spasticity, etc., with apparent recovery. Subsequent events tended to prove, however, that while the diagnosis was basically correct, yet enough importance was not attached to the colloidal gold reaction. Inasmuch as there is general paralysis with ataxia now, even without mental involvement, Pollitzer thinks that taboparesis would be a more correct diagnosis.

Food Allergy Causes Irritable Bladder.—Duke believes that in patients of this type the bladder disorder is frequently the result of hypersensitiveness to certain foods which they are in the habit of eating. The subjective symptoms resemble those of cystitis and may be either mild or so severe as to confine the patient to bed. In uncomplicated cases, complete relief may immediately follow the avoidance of the food to which the patient is sensitive and symptoms may recur when the ingestion of such food is resumed.

Southwestern Medicine, Phoenix, Ariz.

7: 351-400 (Oct.) 1923

History of Medical Fees. D. E. Smallhorst, El Paso.—p. 351.
Physician and Patient. H. S. Bennett, Fort Bayard, N. M.—p. 356.
Technic for Removal of Testicle and Epididymis for Early Tuberculosis. C. S. Vivian, Phoenix, Ariz.—p. 362.
Electric Ophthalmia. S. A. Schuster, El Paso.—p. 365.
Biologic Protective Function of Skin. W. Wilkinson, Phoenix, Ariz.—p. 367.
Somnoform. H. T. Safford, El Paso.—p. 372.
Focal Infection. Cooperation Between Medical and Dental Professions in Its Treatment. L. B. Cary, Douglas, Ariz.—p. 374.
Value of Roentgen-Ray Examination in Pulmonary Disease. W. S. Larrabee, El Paso.—p. 376.
Physiology of Rest in Pulmonary Tuberculosis. R. B. Homan, El Paso.—p. 379.
Case of Pyelitis with Anomaly of Kidney. W. R. Jamieson, El Paso.—p. 381.

Texas State Journal of Medicine, Fort Worth

19: 313-360 (Oct.) 1923

Bronchoscopy. Who Can and Who Should Do It? G. S. McReynold, Temple.—p. 323.
Foreign Bodies in Bronchi. Bronchoscopy in Children. S. Israel, Houston.—p. 326.
Treatment of Chronic Hyperplastic Sinusitis. J. H. Foster, Houston.—p. 330.
Sinus Infection in Children. E. C. Mitchell, Memphis, Tenn.—p. 331.
Otitis Media and Its Sequelae. W. F. Smaltz, Dallas.—p. 335.
Zinc Ionization in Treatment of Chronic Suppurative Otitis Media. H. L. Warick, Fort Worth.—p. 337.
Improvement of Hearing, Nervousness and Tinnitus in Chronic Otitis Media Following Systematic Method of Management. L. H. Lanier, Texarkana.—p. 338.
Mastoid Cases. J. M. Woodson, Temple.—p. 343.
Mastoid Case. F. D. Boyd, Fort Worth.—p. 346.
Tonsil as Source of Systemic Infection and Toxemia. E. F. Wright, Greenville.—p. 347.
Surgery Versus Radiotherapy for Diseased Tonsils. O. M. Marchman, Dallas.—p. 349.
*Results of Tonsillectomy. C. C. Cody, Houston.—p. 352.

Results of Tonsillectomy.—Cody's figures are based on 32,386 cases, recorded in the literature, of tonsillectomy performed by various operators. The condition of mouth breathing, in which hypertrophied tonsils were in evidence, was cured in 89 per cent. of the cases. The failures were due to concomitant nasal obstruction and to the mouth breathing habit. Infective conditions of the throat were relieved in 93 per cent. of the cases. The predilection to colds was cured in 82 per cent. of the cases. The relief of ear symptoms followed the operation in 78 per cent. of the cases. Those affections are due to metastatic infection from a focus in the tonsil, were improved in 75 per cent. of cases. The efficacy of tonsillectomy in remedying enlarged cervical glands was estimated at not more than 50 per cent., and is probably less. In malnutrition the operation successfully remedied the condition in 60 per cent. of the cases. Contrary to the general impression, the mental condition of the child following the operation, as judged by scholarship, was improved in 49 per cent., was unchanged in 49 per cent., and was worse in 2 per cent. of the cases. The voice was improved following tonsillectomy, in 62 per cent. and was injured in 3 per cent. of the cases. Taking the series as a whole, and judging the end results of tonsillectomy under three heads, successful, no change, and worse, the figures are: In 86 per cent. of the cases the operation was successful; in 13 per cent. there was no change, and in 1 per cent. there was failure. Therefore, the efficacy of the operation can be placed at 86 per cent. The failure in 13 per cent. of the cases in which there was no change, was due to mistakes in diagnosis, exploratory or diagnostic operations and, to a slight degree, to errors of technic. The 1 per cent. in which the patient was worse after the operation, can be said to be due to errors of technic, neglect in after-care and operative complications.

Virginia Medical Monthly, Richmond

50: 427-502 (Oct.) 1923

Bilateral Nephrolithiasis. R. C. Bryan, Richmond.—p. 427.
Blood Transfusion. H. C. Jones, Petersburg.—p. 431.
Refraction. E. Hill, Richmond.—p. 435.
Diagnostic Methods in Refraction Work. H. H. McGuire, Winchester.—p. 438.
Etiology and Pathology of Cancer. K. D. Graves, Roanoke.—p. 442.
Symptomatology and Diagnosis of Cancer. W. H. Ribble, Wytheville.—p. 443.
Roentgen-Ray Treatment of Cancer. B. E. Rhudy, Abingdon.—p. 444.
*Vitalizing Obstetric Records. M. P. Rucker, Richmond.—p. 447.
Use of Quinidin in Cardiac Disorders. J. M. Hutcheson, Richmond.—p. 452.
Two Common Diseases in Children Often Overlooked. C. E. Conrad, Harrisonburg.—p. 454.
*Unusual Accident During Delivery at Term. B. H. Martin and A. S. Brinkley, Richmond.—p. 457.
*Unusual Case of Mastoiditis. L. Jones, Portsmouth.—p. 459.
Insulin Treatment of Diabetes. J. D. Willis, Roanoke.—p. 461.
"Acute Abdomen." W. D. Kendig, Kenbridge.—p. 464.
Duties and Advantage of "Whole-Time" County Health Officer. P. M. Chichester, Leesburg.—p. 466.
Treatment of Pulmonary Tuberculosis. H. R. Edwards, Richmond.—p. 470.
Significance of Prolonged Coagulation Time of Blood. J. S. Horsley, Jr., Richmond.—p. 475.
Problems of Rural Communites as Regards Physicans. J. M. Miller, Crockett.—p. 478.
Tetanus. Report of Cases. C. F. Graham, Wytheville.—p. 480.
After-Treatment of Obstetric Cases. H. R. Fairfax, Bristol.—p. 484.
Pott's Disease. W. F. Fogers, Bristol.—p. 485.

Vitalizing Obstetric Records.—Rucker reports a system of coding cases so that they can be put on cards by means of holes punched in such positions that the cases can be analyzed by machinery. The code gives a number to each phenomenon just as the international classification of the causes of death gives a definite number to each disease or cause of death, the difference being that the code can be changed to suit the needs of any particular study. The code Rucker submits is designed to meet the needs of obstetrics and minor gynecology.

Tear of Vaginal Vault During Labor.—Martin and Brinkley relate the case of a woman whose history during pregnancy was negative. Two hours after labor began the cervix was dilated about 2 inches. Seven or eight hours later the cervix was fully dilated and labor pains were about five minutes apart with the face presenting. At 9:45 p. m. a little chloroform was given by inhalation, and 5 minims of pituitary extract hypodermically. The patient had a severe pain soon after the administration and several slight pains for the next thirty or forty minutes. There was a moderate flow of dark blood from the vagina. The chin seemed to be locked behind the pubis. On introducing the hand, the baby was found to be outside the uterine cavity, and the hand was in the abdomen. Version was quickly done, and a dead child delivered. Little bleeding followed delivery. On opening the peritoneal cavity, there was no evidence of a rupture in the uterus. The clots and free blood were removed, and the uterus was found to be suspended only by the tubes on either side and a small bridge of the vaginal attachment posteriorly, which was about 1½ inches wide. Both broad ligaments were lacerated up to the pelvic brim on either side, and the tear on the right side extended through the vaginal wall practically to the vulva. The uterine arteries were cleanly dissected out, but were not torn away from the uterus at the main point of entry.

Extensive Infection of Mastoid Without Symptoms.—Jones' case is of interest in that there was an extensive and total infection of the right mastoid, including a perisinus and epidural abscess and lateral sinus thrombosis, with an atypical history—no pain, temperature or discomfort, either before or after operation. There was no discharge from the ear for over two weeks before the operation, during which time the child appeared perfectly well in every way and yet extensive destructive changes were taking place.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

1: 55-100 (Oct.) 1923

Joseph Thomas Clover, 1825-1882: A Pioneer in Anesthesia. D. W. Buxton.—p. 55.
Painless Childbirth by Synergistic Methods. J. O'Reagan, L. R. Cowan and J. T. Gwathmey.—p. 62.
Intratracheal, Spinal and Rectal Anesthesia. H. P. Fairlie.—p. 68.
Teaching of Anesthesia to Medical Students. W. Bourne.—p. 74.
Value of Reflex Basis in Interpretation of Phenomena During General Anesthesia. S. R. Wilson.—p. 79.
National Anesthesia Research Society of America. E. I. McKeeson.—p. 87.

British Medical Journal, London

2: 685-738 (Oct. 20) 1923

Wisdom of the Body. E. H. Starling.—p. 685.
Present Position of Vitamin Problem. F. G. Hopkins.—p. 691.
*Regulating and Reflex Process. III. Importance of Sinapse. P. T. Herring.—p. 693.
*Treatment of General Paralysis by Infection with Malaria. W. McAlister.—p. 696.
*Id. A. R. Grant.—p. 698.
Care of Choreic Children. A. D. Fordyce.—p. 700.
*Etiology and Treatment of Heart Disease in Early Life. R. Miller.—p. 702.
Spasm of Larynx. St. Clair Thompson, J. Dundas Grant and W. H. Kelson.—p. 712.

Importance of Synapse in Regulating and Reflex Process.—Herring says that there is abundant evidence that the action of drugs on the nervous system is exerted on the synapses or on the receptive substances between the endings of the efferent neurons and the organs they innervate. Fatigue is brought about by the action of waste products formed during activity on the same structures. There is also evidence that certain toxins have a like action. Different substances pick out the synapses of different parts of the nervous system, and spread to others in definite manner. The action may be first manifested on the synapses in the highest level of the nervous system, as in the case of chloroform, and gradually spread to the lower levels involving the synapses on the pathways of the vital reflexes last of all; or it may begin in the receptive substances and cause death from paralysis of the muscles of respiration, as happens in poisoning by curare. It may gradually spread to the higher levels, as in atropin poisoning or in the continued use of overdoses of digitalis. Herring suggests that many of the manifestations of ill health are due to toxins acting on different parts of the nervous system. The symptoms of botulism are explainable in this way and their serious nature is due to the fact that the toxin involves the synapses on the reflex arcs of the vital processes at an early stage. Other and more common conditions are the results of toxins acting on less vital processes. Forms of exhaustion, nausea, lack of appetite, changes in temperature, cardiac, vasomotor and visceral disturbances may sometimes be ascribable to the action of toxins on the synapses of the pathways which are concerned in regulating normal processes. Disturbances of the normal processes are to be recognized by the sensations experienced by the patient and by the alterations that take place in the reflexes, especially those of the viscera: cardiac, vascular, respiratory or alimentary. It is imperative, therefore, that these effects, whether subjective or objective, should be recorded and analyzed carefully.

Treatment of General Paralysis by Infection with Malaria.—McAlister gives a preliminary account of an experiment in the treatment of general paralysis of the insane with the plasmodium of malaria. Twelve cases were treated. Of the nine cases in which this treatment was completed, two patients are conspicuously improved; in one case the emphasis is on the mental, in the other on the physical improvement. Besides these, four other patients show some improvement, although not so marked. In the remaining three cases no distinct change has occurred.

Treatment of General Paralysis by Infection with Malaria.—Grant is of opinion that this form of treatment is worthy of an extended trial as, in his experience, benefit seems to be obtained in almost every case. Of the forty patients under treatment during the past fourteen months, six have died. Three patients have been discharged to their homes and are now following their usual occupations. Three patients formerly wet and dirty in habits have ceased to be so. Two of the patients formerly confined to bed have regained their strength to a considerable degree and are able to be up and about.

Problems of Heart Disease.—The most urgent and important of the problems of heart disease awaiting solution, Miller believes to be: (1) What is the underlying connection between rheumatism and poverty? (2) What is the origin of the repeated relapses and reinfections in the rheumatic state, and how can they be prevented? (3) How can long courses of treatment be given to many heart cripples in the hope of prolonging their lives? These problems concern alike public health workers, clinicians and the charitable public.

Calcutta Medical Journal

18: 337-384 (Aug.) 1923

*Experimental Asthma in Guinea-Pigs. C. C. Bose.—p. 337.
Flood Flushing and Malaria in Kumarkhali. B. Rahmachari.—p. 342.
Malaria and Abortion. S. M. Das.—p. 348.
Neurosyphilis. S. C. Sen-Gupta.—p. 352.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 361.
Variety of Painful Ulcers. A. C. Bose.—p. 365.

Experimental Asthma.—A condition resembling asthma was produced by Bose in guinea-pigs by nasal instillations of protein. A preliminary subcutaneous injection, preceding these instillations, is an advantage. In this way a larger number of positive results are obtained. In the majority of cases the hypersensitiveness is specific, but there are some notable exceptions. The eosinophilic count usually rises during protein instillations, but not so after the animal has become hypersensitive. A subcutaneous injection of epinephrin checks the fits brought about by protein instillation; it also prevents fits when given some time before protein instillation. A preliminary instillation of epinephrin in the nostril prevents the development of a fit in a susceptible animal, when the protein is instilled in the same nostril, but has no effect when the protein is put into the other nostril.

18: 385-432 (Sept.) 1923

*Occurrence of Leishmania in Ulcers of Stomach in Case of Kala-Azar. D. N. Banerjee.—p. 385.
Sporeforming Bacterium and Fungi Growing on Rice Grains Used by Families Suffering from Beriberi and Epidemic Dropsy. S. R. Bose.—p. 389.
*Calcium Content of Blood in Kala-Azar. H. N. Mukherjee.—p. 394.
Continental Treatment in Calcutta of Diseases of Heart and Circulation. U. Basu.—p. 396.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 413.

Occurrence of Leishmania in Stomach Ulcer.—A woman, aged 45, was treated by Banerjee for anemia. She subsequently died of diarrhea and malnutrition. She was in the hospital for twenty-three days and during this period there was no manifestation which might lead to any suspicion that it was a case of kala-azar. Postmortem examination revealed about 120 ancylostomes in the intestines. The stomach showed congestion in patches and contained glairy mucus. There were about half-a-dozen small ulcers with raised margin, covered by fibrinous exudate and surrounded by an area of congestion. Apart from these ulcers there were numerous patches of fibrin sticking to the wall of the stomach, surrounded by areas of congestion but no ulceration. These ulcers were mainly placed on the posterior wall and near the greater curvature of the stomach. There was nothing more particular about the postmortem findings. Because of the severe grade of anemia present, in this case, the bone marrow was studied microscopically. Large numbers of Leishman-Donovan bodies were found either free or lying packed in the marrow cells. Subsequent examination of the smear from the spleen showed a similar finding but the liver showed very few parasites. Smears from the deep layers of the ulcers presented a fair number of these bodies. The case is an illustration of the many different phases of kala-azar.

Calcium Content of Blood in Kala-Azar.—Mukherjee found a calcium deficiency in kala-azar. He suggested that the decrease in the coagulability of the blood in kala-azar is possibly due to this calcium deficiency.

Journal of State Medicine, London

31: 451-500 (Oct.) 1923

Technic of Isolation of Streptococci. H. W. Crowe.—p. 451.
Spirochetic Dysentery. W. Broughton-Alcock.—p. 457.
Autolysis and Bacteriophagis. D. D'Herelle.—p. 461.
Physiotherapy Treatment of Industrial Accident Cases. J. R. Kerr.—p. 467.
Stability of Vitamins. H. Jephcott.—p. 471.

Lancet, London

205: 915-962 (Oct. 27) 1923

Relations of Surgery and Physiology. E. S. Schafer.—p. 915.
Lethargic Encephalitis. C. O. Stallybrass.—p. 922.
*Unilateral Edema with Albuminuria. J. W. Russell.—p. 925.
*Case of Cortical Necrosis of Kidney with Acute Nodal Polyarteritis. E. Wordley.—p. 927.
*Two Cases of Brain Abscess. G. Hadfield.—p. 929.
*Case of Minor Surgery of Hand. J. W. Tomb.—p. 930.
Unusual Hemorrhage Following Radical Mastoid Operation. H. L. Whale.—p. 930.
"Eternal" (Plastic) Triangle. H. D. Gillies.—p. 930.

Unilateral Edema with Albuminuria.—A woman, aged 40, consulted Russell complaining of swelling of the left foot of six years' duration, which gave her serious inconvenience only in hot weather. Very occasionally the right foot was also a little swollen. For the same period she had been feeling tired and had suffered from headache. The urine invariably contained albumin but no casts. There were no visible varicose veins. The pulse was slow and regular and the heart was not appreciably enlarged, though an apical systolic murmur was well marked. The diastolic pressure was 76, the systolic 142. A girl, aged 19, had edema of the left foot and albuminuria, the former of nine years' duration. The right foot was said to be occasionally slightly swollen. The left-sided edema was worse in the summer than in the winter. The heart was normal, as was the blood pressure for the age, and no casts were at any time discovered in the urinary deposit. There were no varicose veins. The patient had a marked lateral curvature with the lumbar convexity toward the left. She also voided considerable quantities of albuminous urine soon after arising from a recumbent position. As a possible factor in the cause of this condition, Russell mentions the fact that there is frequently a small vein running vertically between and connecting the left iliac and renal veins, and that this vein represents either the left postcardinal or the left supracardinal embryonic vein. Sometimes this vein is found of larger size, and in these cases the postrenal portion of the inferior vena cava may be correspondingly diminished. Occasionally this portion of the inferior vena cava may be entirely transferred to the left side, and under these circumstances the whole of the blood from the lower extremities must pass into the left renal vein in order to reach the general portion of the vena cava. It is suggested that if the postrenal portion of the inferior vena cava were in this way duplicated to a considerable extent, so that the blood from the left leg, and, perhaps, some from the right leg, passed into the left renal vein, then any obstruction of the latter would tend to produce an albuminuria with edema of the left lower extremity, and occasional edema of the right foot also.

Necrosis of Kidney with Acute Nodal Polyarteritis.—The interesting features of this case are the most unusual combination of polyarteritis acuta nodosa with cortical necrosis of the kidney. That the disease is an acute infection is obvious from its history and pathology, though so far no cause has been found. In Wordley's case syphilis could be excluded. There was almost complete suppression of urine at first, after which a gradually increasing diuresis set in. The arterial change was limited to the vessels of the heart as far as naked-eye inspection went, and in spite of the extensive degeneration of the kidney, edema was absent throughout the clinical course. The sudden onset with acute pain and hematuria, and the absence of edema, at the beginning of the illness had suggested stone as a possible diagnosis. Later the extreme wasting, the low urea content of the blood, and the continued absence of edema had suggested a neoplasm of the kidney. The abdominal pain and fever were in many respects similar to those described in cases of pure polyarteritis acuta nodosa, with the exception of the complete suppression of urine and sudden termination of the illness.

Value of Cell Count in Brain Abscess.—The two cases cited by Hadfield illustrate the value of a careful differential count of the cells in the cerebrospinal fluid during the stage when this is still clear. In both cases a cerebral abscess was found postmortem which had not discharged its contents into the ventricular system or subarachnoid space. The cerebrospinal fluid was first examined in each case when it was clear, and while the clinical diagnosis was doubtful. At this time, in each case, the cell count was 12 per c.mm. The cells responsible for the increase were polymorphonuclear leukocytes.

Saving a Severed Phalanx.—Tomb relates the case of a girl, aged 5, the terminal phalanx of whose right index finger had been severed through the joint completely with the exception of a narrow strand of skin and tissue on the inner side by which the phalanx was hanging. The phalanx was brought into line with the rest of the finger and retained roughly in position by three stitches one on each of the severed sides. The finger was then bandaged and kept continuously immersed in a bowl of warm saline solution. The after-history was uneventful, the phalanx "growing on" without suppuration, leaving a finger of normal appearance but with a stiff distal joint.

National Medical Journal of China, Shanghai

9: 175-264 (Sept.) 1923

*Causes of Blindness Among Chinese. W. P. Ling.—p. 175.
Typhoid and Paratyphoid Fever in Changsha. Y. Y. Lung and J. H. Foster.—p. 185.
*Mixed Tumor of Parotid. Report of Case. Y. Wong.—p. 198.
Medicolegal Aspects of Insanity. A. H. Woods.—p. 203.
Common Chlorin Antiseptics. J. Cameron.—p. 213.
Spread of Respiratory Disease Through So-Called "Droplet Infection." R. M. Atwater.—p. 217.
Magnesium Sulphate in Tetanus. Report of Two Cases. L. C. Chu.—p. 223.

Causes of Blindness Among Chinese.—Among 6,811 cases analyzed by Ling, blindness in one or both eyes occurred in 760. Trachoma was the etiologic factor in 398 cases; cataract in eighty-three cases; syphilis in seventy-six cases; glaucoma in seventy-three cases. Other causes were: bacterial infections, 48 cases; injuries, 44 cases; exanthemata, 37 cases; neoplasms, 15 cases; albuminuric retinitis, 2 cases; keratomalacia, 4 cases; focal infection, 2 cases; tuberculosis, 2 cases; toxic amblyopia (probably due to methyl alcohol). In 278 cases the etiology was not traceable.

Large Tumor of Parotid.—The tumor in Wong's case was interesting mainly because of its size. It measured 7 x 8 x 4½ inches (17.75 x 20.3 x 11.4 cm.), and weighed 5 pounds and 6 ounces (3.44 kg.), In its center there was a cyst about 2 x 1½ x 1⅛ inches (5 x 3.8 x 2.8 cm.) in size apparently resulting from degeneration.

Practitioner, London

111: 241-308 (Oct.) 1923

Fibrotic Diseases of Lungs and Their Incidentals. T. Oliver.—p. 241.
Indications for Treatment in Pulmonary Tuberculosis. C. A. Sprawson.—p. 255.
Intestinal Theory of Exophthalmic Goiter. E. G. Slesinger.—p. 266.
Otitis Media. L. J. Curtin.—p. 273.
Present Position of Organotherapy. I. G. Cobb.—p. 278.
Behavior of Lymphosarcoma Under Radium Treatment. D. J. Harries and E. R. Williams.—p. 291.
Dietetic Treatment of Nephritis. H. W. Jones.—p. 295.
Spontaneous Reduction of Intussusception. F. Crooks.—p. 298.

Archives Médicales Belges, Brussels

76: 609-677 (Aug.) 1923

*Sudden Death of Young Children. Lefebvre.—p. 609.
*Denervation of the Stomach. Gianolla.—p. 618.
Hematuria in Staphylococcosis. Gripekoven.—p. 626.

Sudden Death in Young Children.—Lefebvre admits that an enlargement of the thymus is present in the majority of such cases. Yet he considers it only one of the lesions of endocrine glands present in such children. The calcium metabolism is affected, and hence the tendency to the fatal spasms. He believes that inherited syphilis is the basis of the whole condition.

Denervation of the Stomach.—Gianolla resected the gastric branches of the pneumogastric nerve in eight patients. He confirms Latarjet's and Wertheimer's favorable opinion on the results of the neurectomy in painful gastric ulcers.

Journal de Médecine, Lyon

4: 537-576 (Sept. 20) 1923

*Circular Movement of the Auricle. L. Gallavardin.—p. 537.
Irritable Heart. J. Bret.—p. 567.
*Blood Pressure and Apoplexy. A. Dumas.—p. 573.

Circular Movement of the Auricle.—Gallavardin surveys the subject of auricular fibrillation and flutter—both conditions due to formation of a circular wave around the caval veins. If the speed is fast (around 600 in a minute), fibrillation occurs. Flutter is caused by a speed down to 200 in a minute. The theory of quinidin treatment and the history of the subject are discussed.

Blood Pressure and Apoplexy.—Dumas does not consider high blood pressure a sufficient cause for cerebral hemorrhages, though it determines their extent. Therefore apoplexy is more dangerous in young persons with high pressure than in older subjects with lower pressure.

Lyon Médical

132: 817-860 (Sept. 25) 1923

Pseudocyst of Pancreas. L. Bérard and A. Cade.—p. 817.
Amebic Bronchitis. Petzetakis.—p. 822.

Paris Médical

217-228 (Sept. 22) 1923

*Vomiting of Pregnancy. Lévy-Solal and Leloup.—p. 217.
*Idem and Anaphylaxis. E. Lévy-Solal and J. Paraf.—p. 218.
*Leukopenia in Shock. E. Delbecq.—p. 220.
Cerebellar Ataxia. P. Auban and Bonhoure.—p. 224.

Vomiting of Pregnancy.—Some features in common of the severe vomiting of pregnancy and the hemoclastic crisis gave Lévy-Solal and Leloup a basis for trying injections of pilocarpin hydrochlorid in treatment of the former. A patient who was semicomatose recovered after eight injections of 5 mg. within forty-eight hours (always three hours before a meal). Pilocarpin nitrate had no action.

Idem and Anaphylaxis.—Lévy-Solal and Paraf injected a glycerin extract of the fetus in a woman who required induction of abortion on account of intractable vomiting. The injection caused a new attack, which lasted for an hour. Cutaneous tests with fetal extracts did not give constant results. Nevertheless, it seems as if such women might be sensitive to the proteins of the fetus.

Leukopenia in Shock.—Delbecq does not consider leukopenia characteristic of hemoclastic shock. Leukopenia is present because the pneumogastric is excited in the shock. Many factors concur in the digestive hemoclasis: the rapidity of the ingestion of the milk with its mechanical irritation, the temperature of the fluid and the amount of pepsin secreted. In two cases the maximum of leukopenia occurred just at the time of a strong sensation of hunger.

Presse Médicale, Paris

31: 789-796 (Sept. 15) 1923

Fractures of Neck of Femur. Robineau and Contremoulins.—p. 789.
*Goiter in Alsace. M. Rhein.—p. 792.
Reduced Circulation. H. Roger.—p. 793.

31: 825-832 (Sept. 29) 1923

Reconstruction of Recently Fractured Neck of Femur. M. Robineau and G. Contremoulins.—p. 825.

Goiter in Alsace.—Rhein compares hydrogeologic conditions with the distribution of endemic goiter in Alsace. With certain reservations he finds that his observations would speak for an infectious etiology of goiter.

Progrès Médical, Paris

469-480 (Sept. 22) 1923

*Hemoclastic Crises. F. Moutier and J. Rachet.—p. 469.
Sympathetic Syndromes. Laignel-Lavastine.—p. 473.
Sacrocoxalgia. Delbet.—p. 474.

Hemoclastic Crisis.—Moutier and Rachet found always an identical positive or negative reaction, whether the patients took milk or distilled water. The crisis seems to be conditioned exclusively by neurovascular reflexes which do not depend on the chemical nature of the test substance. They did not observe, however, any causal connection between the crisis and hypervagotonia.

Revue Franç. de Gynécologie et d' Obstét., Paris

18: 353-432 (June 10-25) 1923

*Vaccine Therapy in Obstetrics and Gynecology. L. M. Pierra.—p. 353.
*Vaccine Therapy in Obstetrics. P. Lequeux.—p. 355.
*Idem in Gynecology. A. Robiolis.—p. 363.
Idem in Disease of Adnexa. G. Cotte.—p. 369.
*Idem in Puerperal Fever. H. Paucot.—p. 373.
Idem in Mastitis. P. Balard.—p. 379.
Idem in Uterosalpingitis. A. Weymeersch.—p. 389.
Idem in Gynecology. A. van Cauwenberghe.—p. 396.
Idem in Puerperal Infection. J. Vanverts.—p. 398.
Autogenous Vaccine in Pyelitis. C. Gonnet and Gaté.—p. 403.
Idem in Puerperal Fever. A. Boquel.—p. 404.
Indications for Vaccines in Puerperal Fever. A. Dantin.—p. 406.
*Antigonococcus Vaccine Therapy. E. Gaujoux.—p. 413.

Vaccine Therapy in Gynecology and Obstetrics.—This entire issue is devoted to arguments and experiences in vaccine therapy. Pierra summarizes them in the statement that the consensus of opinion seems to be that only in subacute and chronic cases is there much chance of success, and then only with autogenous vaccines. The streptococcus vaccines generally fail; the gonococcus give very uncertain results, while colon bacillus and especially staphylococcus vaccines often prove successful.

Vaccine Therapy in Obstetrics.—Lequeux rates low the value of stock vaccines in colon bacillus and gonococcal infections in pregnancy. Autogenous vaccines sometimes produce good effects; at other times the patients become worse. Isolation of the micro-organism (if possible, from the blood) is an important factor. When the condition grows worse after the injection, this is probably because it was made at a wrong time. Some have reported that vaccines by the mouth have given good results when preceded by ingestion of bile. Prophylactic injections of streptococcus vaccine eight days before delivery diminish the number of puerperal infections. Their action is beneficial even when injected during labor. In the period of generalization of the puerperal infection, vaccines are dangerous; serotherapy is then indicated. In the period of localizations, vaccines should be used.

Idem in Gynecology.—Robiolis sees in vaccine therapy only an adjuvant to the usual treatment of adnexal affections, especially of gonococcal type. Alleviation of pain frequently follows the specific treatment.

Idem in Puerperal Fever.—Paucot believes that the main effect of vaccines is nonspecific. They act favorably in not too severe cases. The mortality of puerperal infection remains the same. The treatment has a therapeutic but not a certainly curative value.

Antigonococcus Vaccine Therapy.—Gaujoux reviews critically the literature on the use of gonococcus vaccines in gynecology and obstetrics. He admits good results only in affections of the adnexa.

Schweizerische medizinische Wochenschrift, Basel

53: 857-876 (Sept. 13) 1923

*Tuberculosis of Bronchial Glands. Reh.—p. 857. Idem. Holtz.—p. 862.
*Danger of Iodin in Treatment of Goiter. O. Roth.—p. 865.
*Seroprevention of Puerperal Fever. F. Chatillon.—p. 869.

Tuberculosis of Bronchial Glands.—Reh reviews the clinical (not the radiographic) signs and treatment of tuberculosis of tracheobronchial glands in children.

Danger of Iodin in Treatment of Goiter.—Roth deplores the abuse of iodin in Switzerland, where every school-teacher and druggist seem to give it freely, apparently convinced that the officially sanctioned dosage is without danger. Out of his thirty cases of bad effects of iodin he publishes a few in which the injury was done by minimal doses. Very strict individualization is essential in the prophylactic treatment of goiters. Patients who tolerated larger amounts before, may develop hyperthyroidism later after taking even very small doses.

Seroprevention of Puerperal Fever.—Chatillon injects antistreptococcus serum in all obstetric interventions. It has lowered the morbidity and mortality considerably.

Pediatria, Naples

31: 969-1024 (Sept. 15) 1923

*Hydrocele in Infants. R. Vaglio.—p. 969.
*Bismuth in Congenital Syphilis. A. F. Canelli.—p. 975.

*Etiology of Scarlet Fever. G. Vitetti.—p. 989.
*Idem. P. Ritossa.—p. 992.
Cirrhosis of the Liver in an Infant. G. Salvioli.—p. 995.

Hydrocele in Infants.—Vaglio considers a unilateral or bilateral irreducible hydrocele in infants suggestive of hereditary syphilis. The rare cases of hydrocele which communicated with the peritoneal cavity, were not of syphilitic origin. Among 178 cases, 61 per cent. were certainly or probably syphilitic.

Bismuth in Congenital Syphilis.—Canelli finds that extensive research is still necessary to demonstrate the value of bismuth preparations in syphilitic infants.

Etiology of Scarlet Fever.—Vitetti found the diplococci described by Caronia and Sindoni in the pharyngeal exudate in scarlet fever. The diplococci are gram-positive, smaller than pneumococci, and more ovoid. Anaerobic cultures made from Berkefeld filtrates were agglutinated by serum from convalescents.

Idem.—Ritossa found in the sediment of urine in scarlet fever the diplococci described in the previous abstract. They were not present in the control.

Policlinico, Rome

30: 1185-1216 (Sept. 10) 1923

*Blood Pressure in Scarlet Fever. R. Doria.—p. 1185.
Present Status of Insulin Treatment. S. Marino.—p. 1193.

Blood Pressure in Scarlet Fever.—Doria finds hypotension in scarlet fever similar to that in other infectious diseases. It is due to a general vasodilatation and especially to weakness of the left ventricle. The peripheral circulation is comparatively good, since the diastolic pressure remains high. Albuminuria with low pressure is usually not followed by nephritis. Serum injections lower the blood pressure.

30: 1217-1248 (Sept. 17) 1923

*Antihemolytic Urine Index. A. Siligato.—p. 1217.
Accidental Sounds in Auscultation of Apex of Lung. Pezzotti.—p. 1220.
Nephrocolopexy. R. Mosti.—p. 1224.

Antihemolytic Urine Index.—Siligato tested Condorelli's antihemolytic urine index in patients with nephritis. The index represents the proportion of the inhibiting cholesterol to the hemolytic fatty acids. He found the index high in degenerative affections of the kidneys, due to the presence of cholesterol. Sheep and beef corpuscles are not suitable for the test; emulsions of human corpuscles gave good results.

30: 1249-1280 (Sept. 24) 1923

*Cutaneous Reaction in Malta Fever. E. Trenti.—p. 1249.
Treatment of Surgical Tuberculosis. P. G. Bortolucci.—p. 1254.
Infestation with Ascaris and Oxyuris. A. Filippini.—p. 1256.
Calcium and Complement Fixation. N. Pietravalle.—p. 1259.

Cutaneous Reaction in Malta Fever.—Trenti injected intracutaneously small amounts of the filtrate from twenty day broth cultures of *Micrococcus melitensis* in patients and animals with Malta fever. The reaction was positive even if performed two years after the infection. Controls were negative.

Riforma Medica, Naples

39: 865-888 (Sept. 10) 1923

*The Blood Under Protein Therapy. M. Gelera.—p. 865.
Lymphangio-Endothelioma. P. Russi.—p. 868.
*Vasomotor Eye Reflex. G. Marcialis.—p. 870.
Facial Paralysis in Otitis. U. Virgili.—p. 872.

The Blood Under Protein Therapy.—Gelera found changes in the immunologic qualities of the blood serum: albumin content, surface tension and hydrogen ion concentration, after the first three parenteral injections of foreign proteins. He concludes that the nonspecific treatment acts against the disturbance of protein equilibrium in infections.

Vasomotor Eye Reflex.—Marcialis took plethysmographic tracings of the forearm of healthy subjects during compression of the eyes. He found constantly an initial vasoconstriction followed by vasodilatation. The reaction was not modified by subcutaneous injections of atropin.

39: 889-912 (Sept. 17) 1923

Elephantiasis. D. Giordano.—p. 889.
Sella Turcica in Ocular Affections. C. Guarini.—p. 892.
Fracture of the Patella. G. Tritto.—p. 895.
*Treatment of Epidemic Encephalitis. T. Silvestri.—p. 898.
Pregnancy and Tuberculous Serositis. G. Tescione.—p. 898.
Addison's Disease. S. Antonio.—p. 900.

Treatment of Epidemic Encephalitis.—Silvestri reports good results from intravenous injections of potassium and antimony tartrate in acute epidemic encephalitis. He injected from 5 to 10 c.c. of a 1 per cent. solution, at three day intervals and repeated eventually after fourteen days.

39: 913-936 (Sept. 24) 1923

*Phagocytosis in Sputum. D. Manzetti.—p. 913.
Spastic Paraplegia. R. Menasci.—p. 914.
*Histogenous Immunity. J. Carra.—p. 916.
Reconstruction of Knee Joint. Stanischeff.—p. 918.
Postencephalitic Neurasthenia. G. Calligaris.—p. 918.

Phagocytosis in Sputum.—Manzetti found phagocytosis of tubercle bacilli in the sputum of twenty-two patients out of 108 examined (20.3 per cent.). The sign is prognostically unfavorable. It was present in patients with rapidly progressing pulmonary tuberculosis and a tendency to anergy.

Histogenous Immunity.—Carra injected filtrates from staphylococcus cultures, which contained hemolysins and leukocidins, into rabbits. He found that red and white corpuscles, washed carefully so that they contained no trace of serum, were more resistant against these poisons than the controls.

Brazil-Medico, Rio de Janeiro

2: 173-184 (Sept. 15) 1923

*Gonococcal Urethritis in Little Boys. Barros Lima.—p. 173.
Gonorrhea of Twenty Years' Standing. A. Pereira.—p. 176.
Chlorophyl and Vitamins. E. Bertarelli and U. Paranhos.—p. 178.

Gonococcal Urethritis in Little Boys.—In the case described by Barros Lima, the urethritis was typical in a boy, aged 4, and it healed without complications. He compares it with similar cases on record and the methods of treatment that have been applied.

2: 185-200 (Sept. 22) 1923

*Epidemic Encephalitis. Malagueta and Tavares Corrêa.—p. 185.
*Partial Epilepsy. W. Berardinelli.—p. 188.

Epidemic Encephalitis.—The girl, aged 15, was in domestic service when she developed fever, pains and severe contractures. The early somnolence and the 9.3 per cent. of glucose in the spinal fluid differentiated the case as epidemic encephalitis after tetanus and meningitis had been excluded.

Partial Epilepsy.—The jacksonian epilepsy developed suddenly in the young man not long after he had acquired syphilis. The attacks were frequent and severe, but they subsided completely under specific treatment.

2: 201-212 (Sept. 29) 1923

*Nature of Bacteriophagy. J. da Costa Cruz.—p. 201.
The Conception of Consciousness. Fabio Sodré.—p. 202.
Chemical Composition of Sodium Citrobismuthate. Ganassini.—p. 204.

Nature of Bacteriophagy.—Costa Cruz reports further experiences which sustain the assumption that the bacteriophage is a substance that resembles the antibodies. Its physical properties seem to exclude the possibility of its being a living virus. In fact, he says, the inactivation of the bacteriophage by the absence of electrolytes from the fluid suggests that our present conceptions of filtrable viruses need revision. Electrolytes act on antibodies, and on the bacteriophage by maintaining the dispersion necessary for the action of the antibodies and the bacteriophage. The electrolytes act on emulsions of microscopic living organisms in exactly the reverse manner, that is, they induce flocculation instead of dispersion.

Prensa Médica Argentina, Buenos Aires

10: 253-280 (Sept. 10) 1923

*Control of Leprosy. M. Aberastury.—p. 253.
*Drainage for Empyema. C. I. Allende.—p. 264. Conc'n.
*Neurectomy of Phrenic Nerve J. Maque and M. Balado.—p. 267.
Experimental Psychochronometry. J. L. Alberti.—p. 270.

Control of Leprosy.—Aberastury presents a bill for consideration by the government, in prophylaxis of leprosy, which has been endorsed by the national public health service and others. He mentions that the second American Antileprosy Conference is to convene at Buenos Aires in 1926.

Treatment of Empyema.—Allende declares that the costodiaphragmatic sinus is not the preferable point for draining the pleural cavity. He describes twenty cases which apparently sustain his claim that the most effective drainage is by an opening on the posterior axillary line, in the equator of the thorax, at about the fifth rib. He insists on the importance of using the smallest drain that will evacuate the pus, and aiding evacuation by breathing exercises or the use of Wolff jars. He resected the fifth or sixth rib, and 20 per cent. were cured completely in two weeks, including one infant of 10 months. Sixty-five per cent. recovered in a month at most. It is important to bear in mind the gravity of any intervention for acute empyema when the primary lung process is still active.

Neurectomy on the Phrenic Nerve.—Maque and Balado's experience has confirmed the advantages of paralyzing the diaphragm by phrenicotomy to rest the lower lobes in case of a tuberculous focus in the superior lobe, and as a preliminary to resection of the esophagus and thoracoplasty, but, above all, as a guide to intervention. If after the neurectomy the fever increases and clinical signs appear in the supposedly sound lung, the latter is not capable of standing extra functional demands, and extrapleural thoracotomy is contraindicated. Two cases are described; the phrenicotomy proceeded smoothly without by-effects under infiltration anesthesia.

Revista de Medicina y Cirugía, Havana

28: 623-662 (Sept. 25) 1923

*Climatic Psychoneurosis. E. Escomel.—p. 623.
Prophylaxis of Venereal Disease. J. Traviesco.—p. 633.

Climatic Psychoneurosis.—Escomel describes the peculiar moods of depression or exaltation from which nearly every one suffers in Arequipa on certain days. This is the second city in Peru, and it lies at an altitude of about 7,000 feet. In these days of *nevada* the air is charged with electricity, and even animals and children are restless and different. All classes are affected, but brain workers and nervous women suffer most. A similar atmospheric psychic state has been observed at Biskra and at Caracas, but it seems most severe at Arequipa.

Revista de Medicina y Cirugía, Caracas

6: 219-240 (Sept. 30) 1923

*Abdominal Pregnancy at Term. Mario Garcia D.—p. 219.
The Leprosy Question. J. Izquierdo.—p. 226.
Wilde's Incision in Otology. L. López Villoria.—p. 231.
Acute Syphilitic Myelitis. B. Perdomo Hurtado.—p. 238.

Abdominal Pregnancy at Term.—Mario Garcia reports the necropsy findings in two cases and the operative findings in another case of secondary abdominal pregnancy at term. In the first case the head of the fetus was still in the tube but the arms and legs lay among the intestines, one arm reaching to the bottom of the pouch of Douglas. The fetus weighed 4 kg. (8.8 lb.). The pregnancy had been apparently normal until the eighth month. In the two other cases the fetus at term was macerated. One woman complained only of pains in the region of the right tube. The third woman had been having severe pains in the lower abdomen from the sixth month and recurring syncopal attacks from the seventh month. During the eighth month there had been recurring uterine hemorrhage. The palpation findings suggested a large myoma in the uterine cervix. The fact that the wall of the vagina formed part of the tumor was accepted as excluding ectopic pregnancy. Redness and tenderness in the right iliac fossa led to puncture; this released gases, and the hand of a fetus was discovered. After extraction of the partly gangrenous fetus and a siege of suppuration, with escape through the fistula of all the feces, the woman recovered and left the hospital after a five months' stay.

Semana Médica, Buenos Aires

1: 885-936 (May 10) 1923

Arsenicals in Treatment of Leprosy. P. L. Baliña.—p. 886.
*Diathermy. C. A. Castaño and J. F. Merlo Gómez.—p. 893.
Auscultation and Percussion of the Abdomen. E. P. Siri.—p. 901.
Reform in University Management. O. L. Bottaro.—p. 907.
*Berberis in Therapeutics. J. A. Dominguez.—p. 915.

Diathermy.—Castaño and Merlo Gómez analyze their experiences with diathermy in more than 100 cases. The benefit was amazing in some, while others, apparently identical, failed to show any improvement. But the treatment never did harm, and it should be given a trial, they say, before resorting to the knife. It is most promising in abdominal and gynecologic affections, and especially for postoperative adhesions. Tenacious and rebellious constipation from postoperative adhesions or retraction or spasm was notably benefited, as also traumatic and rheumatic joint disease, but not infectious arthritis. Their experiences with gonococcus processes were conflicting. The secretions sometimes returned in forty-eight hours after gonococcus urethritis had been exposed in forty-two cases up to an hour and fifty-seven minutes. But the diathermy relieves the pain almost at once, and frequently proves a most valuable adjuvant. In orchitis, epididymitis and prostatitis the relief was great and the treatment more often successful with less drawbacks than with other measures. The large, chronically painful uterus with parenchymatous metritis subsided and softened, and the pains disappeared under diathermy. The best results were obtained in adnexitis, and saved many women from mutilating operations. Acute joint and abdominal processes, especially tuberculosis, contraindicate diathermy, as the process generally flares up under it. A tendency to hemorrhage is a further contraindication.

Berberin in Therapeutics.—Dominguez gives the results of study of the chemical and pharmacologic properties of indigenous species of berberis.

2: 81-132 (July 19) 1923

*Treatment of Eczema in Infants. P. Rueda.—p. 81.
Schick Reaction in Weakly School Children. T. A. Tonina.—p. 96.
*Extraction of Foreign Bodies. C. Heuser.—p. 107.
*Intractable Vomiting of Pregnancy. S. E. Bermann.—p. 109.
Radiotherapy of Uterine Cancer. Martin Miranda Gallino.—p. 117.

Treatment of Eczema in Infants.—Rueda reports 27 cases of seborrheic eczema in infants treated on the basis that the pancreas was responsible for the affection.

Extraction of Foreign Bodies Under Roentgen Control.—Heuser wears over one eye a metal tube provided with a fluorescent screen; the roentgen apparatus is below the table on which the patient is lying. He thus can locate the foreign body with this eye, by turning on the current, while the other eye sees by daylight.

Uncontrollable Vomiting of Pregnancy.—Bermann's analysis of the literature shows a bewildering variety of measures that have succeeded in some cases and failed in others. The first thing is to combat the dehydration, preferably by drip rectal infusion of 2 liters of 5 per cent. glucose solution or a liter of physiologic saline solution subcutaneously. Isolation is imperative, and this can be insured only in an institution, with a nurse skilled in suggestion. For twenty-four to forty-eight hours nothing, not even a drop of water, should be allowed by the mouth. Then boiled water or Vichy water can be taken by the spoonful, every hour or half hour. When the water is retained, milk can be added to it, cold or hot as preferred. If milk is disliked, yoghurt can be taken, or tapioca gruel. The stomach is rinsed out every day for four days. This should be done gently by the physician himself, with 2 liters of slightly alkaline water. The bowels should be regulated, by the mouth if possible. The feet should be kept warm, and chloral be given by enema, 4 or 6 gm. in 100 gm. of acacia solution, and the urine analyzed. A subcutaneous injection of 15 c.c. of horse serum or 20 c.c. of the patient's own blood may prove useful, possibly supplemented by transfusion of 300 or 400 gm. of blood. If this treatment fails and the patient is losing weight, a sham abortion operation might be tried. Before beginning treatment, it is well to correct displacement of the uterus, and hold it corrected with a bandage, at least.

Archiv für Gynäkologie, Berlin

119: 163-378 (Sept. 12) 1923

Pathology of Corpus Luteum. P. Mathes.—p. 163
Cause of Rupture of Follicle. E. Strassmann.—p. 168.
Hemorrhagic Metropathies. H. Runge.—p. 207.
*Research on Fetal Development. E. Vogt.—p. 219.
*Surgery of Pelvic Inflammations. Werner and Stiglbauer.—p. 225.
*Glycogen in Vagina. W. Niderehe.—p. 261.
Puerperal Mesenteric Thrombosis. Bucura.—p. 275.
*Edema of Pregnancy. P. Schumacher.—p. 33

*Placenta Praevia. H. O. Neumann.—p. 320.
*Regeneration of Uterine Muscle. H. Kalenscher.—p. 348.
*Hermaphrodism. J. Matsuno.—p. 359.
Fetal Malformations. P. Schugt.—p. 366.
Papilloma of Cervix. W. Möhnle.—p. 373.

Research on Fetal Development.—Vogt describes his *method of cutting frozen sections of fetuses for the study of* the topographic relations of organs.

Surgery of Pelvic Inflammations.—Werner and Stiglbauer operated on only 5 per cent. of their patients suffering from infections of the adnexa and pelvic cellular tissue. The total mortality was 1.6 per cent. It was high (7.2 per cent.) in abdominal radical operations, which were, however, performed in the severer cases. The best results were realized in radical vaginal operations. A permanent recovery was obtained in 79 per cent. of all the patients.

Glycogen in Vaginal Tissue.—Niderehe examined vaginal sections histologically for the presence of glycogen (Best's staining method, controlled by Schmorl's digestion with saliva). It has been supposed that this substance is important for the nutrition of some vaginal bacteria and formation of lactic acid. *While admitting this, he warns against overestimating its final importance.* He considers the presence of glycogen as a process which is analogous to keratinization.

Edema of Pregnancy.—Schumacher studied 200 pregnant women for the presence of edema. *He found evidences of* edema in the last four weeks in 64 per cent. of the women in the morning, and in 95 per cent. in the evening. Weighing is *the best method to recognize a tendency to edema.* Only those who presented sudden changes in weight were diagnosed as cases of hydrops gravidarum. The blood pressure was usually normal, rarely increased, without albuminuria. The dilution and concentration tests elicited normal responses.

Placenta Praevia.—Neumann publishes two cases of accretion of placenta praevia. At least *a strong adhesion to the* uterine wall may be expected in every case of placenta praevia, especially in the cervical form. Most of these women bleed to death, *if treated with old methods.* Cesarean section allows free inspection and makes total extirpation possible if it is necessary.

Regeneration of Uterine Muscle.—Kalenscher made tissue cultures from the uterine musculature. He found that the embryonal cells regenerated actively, while the cultures from *the uteri, taken postpartum, showed only few new cells.*

Hermaphrodism.—Matsuno reports two cases of female pseudohermaphrodism. Extirpation of the ovaries and implantation of apparently *normal glands failed to induce a* better development of the secondary sex characters. Complete series of sections of the extirpated ovaries revealed no testicular elements.

Deutsche medizinische Wochenschrift, Berlin

49: 1141-1172 (Aug. 31) 1923

Insulin. E. Grafe.—p. 1141. Conc'n, p. 1177.
Insulin in Diabetic Coma in Child. M. Simon.—p. 1144.
Hernia of the Brain. P. Prym.—p. 1145.
*Transformation of Streptococci. R. Freund.—p. 1146.
*Pyotherapy. E. Makai.—p. 1147.
*Seroprophylaxis of Measles. G. Salomon.—p. 1151.
Wildbolz' Urine Reaction. Ahrens.—p. 1153.
*Etiology of Alveolar Pyorrhea. M. M. Reinmöller.—p. 1155.
Economizing Cocain. A. Abraham.—p. 1156.
Treatment of Whooping Cough with Ultraviolet Rays. Schotten.—p. 1157.
Cannula for Artificial Pneumothorax. P. Zobel.—p. 1157.
Vaccine Therapy of Furunculosis. H. Sieben.—p. 1158.
Survey on Dermatology and Venerology. Evening.—p. 1158.
Reform of Professional Organization and Tribunal of Honor. B. Glaserfeld.—p. 1161.

Transformation of Streptococci.—Freund observed hemolytic colonies among green ones when he made cultures from the subcutaneous tissue of mice infected with the viridans and treated with some acridin derivative.

Pyotherapy.—Makai treated acute and chronic abscesses with subcutaneous injections of 1-10 c.c. of the pus, at five day intervals. The injections were well tolerated, although no attempt was made to sterilize the pus.

Seroprophylaxis of Measles.—Salomon injected normal serum of adults and serum of convalescent children in prophylaxis of measles. The results were about equal. It is to be noted, however, that he used very small doses of the convalescents' serum, which resulted in a *morbidity of nearly 50* per cent.

Etiology of Alveolar Pyorrhea.—Reinmöller tested the serum from eight patients suffering from alveolar pyorrhea for the presence of ferments. Seven of the eight serums digested boiled thymus tissue. Only the eighth patient improved markedly after local treatment. He believes, therefore, that genuine pyorrhea occurs only in persons with some endocrine disturbance.

49: 1173-1196 (Sept. 7) 1923

Digitalis Treatment. C. Hirsch.—p. 1173. Conc'n, p. 1202.
Insulin. E. Grafe.—p. 1177. Conc'n.
*The Myocardium in the Tuberculous. G. Töppich.—p. 1179.
*Early Eye Changes in Syphilis. A. Memmesheimer.—p. 1180.
Skin and Immunity. W. Böhme.—p. 1182.
Pyarthrosis. E. Wohlauer.—p. 1183.
Treatment of Viper Bite with Passive Hyperemia. K. Jacob.—p. 1184.
Sickness Insurance of Middle Classes. Hanauer.—p. 1184.

The Myocardium in the Tuberculous.—Töppich's experiments show *that tuberculin causes only a fatty degeneration* of the heart muscle.

Early Eye Changes in Syphilis.—Memmesheimer examined vision and the fundus of the eyes in patients with certain positive syphilitic findings in the cerebrospinal fluid. He found changes in the eyes as early as in the fourth week *after infection.*

Klinische Wochenschrift, Berlin

2: *1677-1724* (Sept. *3*) *1923*

*The Metabolism in Diabetes. H. C. Geelmuyden.—p. 1677.
Desensitization in Eczema. J. Jadassohn.—p. 1680.
*Management of Childbirth. H. Sellheim.—p. 1684.
*Therapeutic Quotient of Disinfectants. W. Lipschitz.—p. 1689.
*Injections of Iodin. G. Holler.—p. 1692.
*Purin Elimination and Gout. H. Steudel.—p. 1694.
*Shotgun Wounds. G. Strassmann.—p. 1695.
*Treatment of Tetany. W. Raab.—p. 1696.
Extracardiac Circulation of Blood. K. Hasebroek.—p. 1697.
Antihidrotic Action of Thallium. A. Buschke.—p. 1698.
Culture of Spirochoeta Pallida. W. Krantz.—p. 1698.
Analysis of Silver Preparations. K. v. Neergaard.—p. 1699.
Chyliform Effusions. H. Schranz.—p. 1699.
*Placenta Praevia. H. A. Dietrich.—p. 1702.
Serodiagnosis of Syphilis. H. Dold.—p. 1705. Conc'n.

The Metabolism in Diabetes.—Geelmuyden reviews the intermediate metabolism in diabetes from the standpoint of increased sugar production. The increase in the respiratory quotient after injections of insulin is due rather to a production of fat from carbohydrates than to an increased burning of sugar. The quotient may surpass 1, which can be explained only as production of fat. He points to certain parallels with conditions leading to hypoglycemia, disappearance of glycogen and fatty infiltration of the liver, like phosphorus poisoning, Addison's disease, and cyclic vomiting of children, in which lipemia and ketonuria may occur. Epinephrin seems to be a true antagonist of insulin, each acting in the opposite way on production of sugar from fat, and vice versa.

Management of Childbirth.—Sellheim uses Gauss' *"principle* of least coercion" as the best expression for the mechanism of labor. The mother's organs act according to this principle on the fetus, and the fetus reciprocates. The drawbacks of childbirth, as compared with labor in animals, are partly compensated by the underdevelopment of the bones in babies. Some of the disadvantages would be overcome if women would have their first delivery earlier, before the elasticity of the organs has become reduced. *He believes that a normal* sexual and procreative life would not only lower the number of anomalies in childbirth, but would also reduce the number of cases of endometritis and of pathologic growths of the uterus.

Therapeutic Quotient of Disinfectants.—Lipschitz compares the inhibition by disinfectants of the reducing power of germs with the inhibiting influence of the preparations on the respiration of body cells. He found that the reducing power of bacilli in respect to meta-dinitrobenzol corresponds to their breathing and to their number. It has nothing to do, however, with the *inhibition of their growth. Yet this quality of* the disinfectants is also of great practical value, when compared with the inhibition of respiration of the tissues. Both quotients should be determined for every preparation.

Injections of Iodin.—Holler confirms the accumulation of iodin in diseased tissues, especially in tuberculosis. He found no iodin in the thyroid in two cases of pernicious anemia. He has had favorable results with iodin treatment in anemias, such as others have reported with thyroid treatment. He finds that the erythrocytes under this treatment become larger and contain more proteins and hemoglobin.

Purin Elimination and Gout.—Steudel studied the effects of the use of different sorts of bread in two healthy men. Some bread caused strong intestinal fermentation, and on these days the uric acid content of the urine was small. He attributes this to destruction of the nucleinic bases by the intestinal micro-organisms, and believes that this might be the basis for a rational treatment of gout.

Shotgun Wounds.—Strassmann reviews the differential signs that distinguish the entering from the emerging point of bullets. He suggests that the tissues of the wound be examined microscopically for particles torn from the clothing. Kolisko found that the second shot from a gun darkens the wound canal more than the first shot, because it carries the soot from the first shot with it. Up to a distance of 40 meters, pistol-shots caused a narrow gray border around the entrance, except when the gun had been extraordinarily well cleaned.

Treatment of Tetany.—Raab reports recovery in a case of severe tetany after daily doses of 12 gm. of mono-ammonium phosphate, as recommended by Porges and Adlersberg.

Placenta Praevia.—Dold considers cesarean section as the method of choice in cases of placenta praevia. The mortality is low. Infection is a contraindication. Midwives should not be allowed to make examinations in such cases.

Medizinische Klinik, Berlin

19: 1215-1246 (Sept. 9) 1923

*Irradiation of Cancer. E. Opitz.—p. 1215.
Resistant Syphilis. Fabry.—p. 1218.
*Irradiation of Ulcers. H. H. Matoni.—p. 1220.
*Treatment of Glaucoma. C. Hamburger.—p. 1224.
Epicondylitis of Tuberculous Origin. M. P. Schüller.—p. 1225.
Fragmentation of Heart. G. Hartwich.—p. 1226.
Treatment of Abortion. R. Elkan.—p. 1227.
*Skin and Immunity. H. Moral.—p. 1229.
Treatment of Cervical Gonorrhea. Roscher and Gollmer.—p. 1229.
Rough Respiration. Windrath.—p. 1231.
Galvanic Current and Erythrocytes. M. E. Alexander.—p. 1232.
The Meinicke Turbidity Reaction. Holländer and Funccius.—p. 1233.
Insulin. K. Brandenburg.—p. 1234.
Present Status of Orthopedic Treatment of Rickets. S. Peltesohn.—p. 1235.
Recent Works on Vitamins from Pediatric Standpoint. Zoepffel.—p. 1238.

Irradiation of Cancer.—Opitz admits the possibility of killing cancer cells by roentgen-rays, if it were not necessary to protect the surrounding tissues. The dose required would be several times as large as the doses actually employed. The results have no relation to the amount of the irradiation. Most of the apparently cured cases in his experience received small doses. The cancer returned in those patients who were treated with the full so-called "carcinoma dose." The "carcinoma dose" is only the maximal, not the best possible amount of rays. The action does not consist in a direct destruction of the cancer cells. It causes the formation of chemical substances, which may influence the cancer even if the rays are not applied directly to it. The irradiation causes clinically an irritation of the vegetative nervous system (affecting especially the pneumogastric). Its action resembles the effects of cholin. The hope to find a certain dose of roentgen rays which would destroy cancer is utopian. Small doses may have a stimulating action on the cancer, but he never was able to observe this in cancers of the female sex organs.

Irradiation of Ulcers.—Matoni treats with roentgen rays all ulcers of the stomach and duodenum except indurated ulcers and those that have entailed stenosis. He reports more than 75 per cent. of recoveries among 140 patients. He saw no injuries from the treatment except a regular very pronounced "roentgen-ray crapula." The diminution of acidity was constant and permanent. Pains were favorably influenced.

Treatment of Glaucoma.—Hamburger injected maximally 0.5 c.c. of a 0.1 per cent. solution of epinephrin under the conjunctiva, preferring the temporal side not far from the cornea. Extreme mydriasis, which is greater than that after atropin and is painful in inflamed eyes, follows almost immediately. The tension of healthy and glaucomatous eyes sinks rapidly and remains low for a few days. An acute attack of glaucoma after such an injection disappeared after eserin. He believes that glaucoma is caused by atony and dilatation of the uveal blood vessels. Therefore he uses the sympathicotropic epinephrin in chronic cases.

Skin and Immunity.—Moral injected 0.5 c.c. of typhoid vaccine partly intracutaneously, partly subcutaneously, and determined the agglutinating titer of the serum. There was no difference between the two ways of immunization.

Münchener medizinische Wochenschrift, Munich

70: 1141-1166 (Sept. 7) 1923

Fashions in Therapeutics. W. Stoeltzner.—p. 1141.
*Porphyrinuria. H. Fischer.—p. 1143.
*Porphyrin in Lung Gangrene. H. Kämmerer.—p. 1144.
Cancer Growth. R. Bierich.—p. 1145.
*Serodiagnosis from Retroplacental Blood. Hohn and Gummert.—p. 1146.
*Experimental Leukopenia. W. Müller.—p. 1149.
*Silver Charcoal. H. Bechhold.—p. 1149.
Neurology of Young Children. E. Thomas.—p. 1151.
Astringent Action of Mineral Waters. G. Keysselitz.—p. 1155.
Duties of Contract Obstetricians. W. Zangemeister.—p. 1156.
Chronic Nephritis in Children. M. Klotz.—p. 1157.

Porphyrinuria.—Fischer distinguishes three natural kinds of porphyrins in man: the porphyrin of urine, of stools, and Kämmerer's porphyrin. All of them sensitize the skin against light. He does not believe that Kämmerer's porphyrin, which undoubtedly forms in the intestinal tract after ingestion of meat, has any pathologic significance. It did not appear in the urine. The coproporphyrin is derived from the myohemoglobin and is present in normal urines. It is increased in sulphonal and lead poisoning, which accelerate the destruction of myohemoglobin. Before being excreted, it is carboxylized. Its sensitizing power is greatly enhanced by this process. There are interesting analogies between the porphyrins, derived from blood and from muscle hemoglobin, and between the two chlorophyls.

Porphyrin in Lung Gangrene.—Kämmerer made cultures from pulmonary gangrene and a putrid bronchiectasis in blood bouillon. He found a very marked formation of hematoporphyrin, and concludes that this may occur in vivo.

Serodiagnosis from Retroplacental Blood.—Hohn and Gummert examined the retroplacental blood from 944 women. They compressed the uterus after delivery of the placenta and caught the blood in sterile tubes. The precipitation reactions gave less false positive results than complement fixation. Addition of small amounts of glycocoll and other substances, which inhibit complement fixation, did not give false results with precipitation.

Experimental Leukopenia.—Müller finds that intracutaneous injections cause a diminution of at least 25 per cent. of the leukocytes, in normal subjects. Some (although not all), generalized affections of the skin failed to present this phenomenon.

Silver Charcoal.—Bechhold treated animal charcoal and kaolin with small amounts of silver preparations. He found that it increased their absorbing power and added to it a strong germicidal property. Silver charcoal is superior to silver bolus. He points out that the use of bolus was recommended by Dioscorides against erysipelas and poisons.

70: 1191-1216 (Sept. 21) 1923

*Roentgen Treatment of Cancer. P. Sippel and G. Jaeckel.—p. 1191.
*Treatment of Sepsis. M. Friedemann.—p. 1195.
Influenza in the Tropics. W. H. Hoffmann.—p. 1199.
*Dentistry in Epilepsy. H. J. Tholuck.—p. 1199.
Hookworm Disease in German Colonies in South America. Jaeger.—p. 1200.
Meningeal Carcinosis. G. Wüllenweber.—p. 1200.
Reflecting Roentgen Plates. P. Stumpf.—p. 1201.
Stimulation by Roentgen Rays. L. Freund.—p. 1202.
The Tonus in Tuberculosis. A. Baemeis[illegible] 1202.
Present Status of Diphtheria. G. Riebe[illegible]04. Conc'n p. 1232.

Roentgen [illegible] r. [illegible] nd [illegible] iscuss critically the failu[illegible] eleven years at Bumm's clinic in Berlin (seventy-one primary cancers and eighty-three recurrences, with an interval since of five years). The only comparatively favorable results were obtained in the 144 cases of prophylactic after-treatment of operated carcinomas of the cervix and ovaries. The outcome in all the others has been, with few exceptions, disastrous (*vernichtend*). They investigated the causes of failures: Coolidge tubes of the same system may give a different amount of rays. The milliamperemeter may accumulate an electric charge and give higher figures in currents of low intensity, and lower figures with stronger currents (60 per cent.). They gave usually the highest possible doses (erythema of skin). They found that Dessauer's and Vierheller's estimations of the deep dose are too high. Therefore a combination with a direct vaginal irradiation (with radium) gives better results. Yet the main cause of failures is the different sensitivity of the tumor. No histologic or chemical method, nor initial results allow us so far to predict the outcome. Very few tumors are really sensitive like solitary sarcomas of lymphatic glands, and some cases of malignant goiter. Only about 10 or 20 per cent. of the tumors react to the skin dose, and the rest (60-70) are very little or not at all influenced. Different adjuvant methods (protein therapy, injections of salts of heavy metals) failed. It seems that local irradiation enhances the growth of metastases. They now have resumed the practice of operating in all cases of cancer which are not inoperable when first seen.

Treatment of Sepsis.—Friedemann reports his experiences with different drugs and without them in septicemias. Both methods gave good and bad results. He declares that he would believe in the action of a given drug only if several cases of puerperal sepsis with severe clinical symptoms and repeatedly positive blood cultures should recover. All other cases and combinations can recover spontaneously.

Dentistry in Epilepsy.—Tholuck discusses the possibility of provocation of epileptic seizures by carious teeth or irritation from false teeth. Epileptics should prefer crowns and bridges, and avoid plates as much as possible. In any event, the plates should be made from metal so that they cannot be bitten through, and they should be so large that they cannot be swallowed.

Wiener klinische Wochenschrift, Vienna

36: *635-652 (Sept. 6) 1923*

Morbid Anatomy and the Clinic. R. Maresch.—p. 635.
*Pyocyaneus Bacteriophages. S. Okuda.—p. 638.
Vaginal Cysts. V. Pauliucu-Burla.—p. 639.
*Pylorus and First Part of Duodenum. T. Bársony.—p. 643.
Echinococcus Disease of Liver. G. Spengler.—p. 644.

Pyocyaneus Bacteriophages.—Okuda continued Cancik's investigations on pyocyaneus bacteriophages. He believes that probably all the cultures which color the medium dark contain them. Similar bacteriophages were found in a culture of *Bacillus fluorescens liquefaciens*.

Pylorus and First Part of Duodenum.—Bársony investigated the movements of the pylorus caused by contractions of the antrum. He finds that they determine the shape of the upper first part of the duodenum. It is concave in hypertonia and increased peristalsis, and straight or convex downward in conditions of atony.

36: 653-670 (Sept. 13) 1923

Ossification of Stroma in Cancer. T. Hasegawa.—p. 653.
*Roentgen Rays in Anuria. F. Pordes.—p. 656.
Urobilin Formation. F. Passini and J. Czaczkes.—p. 657.
Duodenal Stenosis in New-Born Infant. Ostertag.—p. 659.
*Medical Impressions of America. E. Fuchs.—p. 670.

Roentgen Rays in Anuria.—Pordes believes that the roentgen rays never have a stimulating action. Even small doses destroy some parts of the irradiated tissues. Their favorable action in anuria may be attributed to a destruction of a leukocytic infiltration and subsequent decompression of the glomeruli.

Medical Impressions of America.—The ophthalmologist, Prof. E. Fuchs, reports his experiences during his recent visit in America. A large part is formed by objective data; the subjective part is quite favorable. His first visit was more than twelve years ago.

Zeitschrift für urologische Chirurgie, Berlin

14: 1-104, 1923

*Carbuncle in the Kidney. W. Horn.—p. 1.
*Hypertrophy of the Prostate. M. Jacoby.—p. 6.
*Postoperative Renal Hemorrhage. A. Jianu.—p. 38.
Causes of Retention in Bladder Diverticulum. G. Praetorius.—p. 46.
Dermoid Cyst in Pelvis Connective Tissue. A. Brenner.—p. 58.
*The Bladder After Suppuration in the Prostate. Boeminghaus.—p. 63.
Research on Physiology of the Prostate. Idem.—p. 71.
*Device to Plug Cystostomy Opening. G. D'Agata.—p. 89.
*Operative Treatment of Undescended Testis. I. Bruskin.—p. 91.

Carbuncle in the Kidney.—In Horn's case there had been no local symptoms attracting attention to the kidney, no pain or tenderness, while coincident hypertrophy of the prostate apparently explained the general symptoms. The man, aged 53, had had a carbuncle at the back of the neck two months before. The condition grew worse after prostatectomy, and the man died in three weeks with uroseptic symptoms. The right kidney presented an aspect resembling that of the carbuncle on the neck.

Hypertrophy of the Prostate.—Jacoby photographed from above the outlet of the bladder, and examined frozen sections taken from the three dimensions in 200 cases at operation or necropsy. His eighteen photomicrograms confirm his verdict that the hypertrophy of the prostate is never diffuse. The enlargement is due to the development of nodules. These nodules are not found in atrophy; they consist of glandular or fibromyomatous tissue. Neither arteriosclerosis, inflammation, or the internal secretions seem to be responsible; the hypertrophy is more of the nature of a tumor, although not a true tumor.

Postoperative Hemorrhage in the Kidney.—Jianu takes a U stitch through the kidney capsule and the mucosa, after the nephrotomy. The suture lies in the plane of a Bertin pyramid, where the vessels have been severed. A row of these U stitches on each side prevents danger of hemorrhage at the time or later.

Behavior of the Bladder After Prostatectomy.—Boeminghaus gives details of a case in which abscesses in the prostate had entailed incontinence of urine. The muscular elements controlling the bladder sphincter are liable to be destroyed by the suppuration in the prostate. Somewhat similar conditions prevail in the bladder after prostatectomy, only in this case the muscular elements are less involved and are able to recuperate. In the case reported the patient prefers the wearing of a urinal to the plastic operation advocated.

Cystostomy Drain.—D'Agata slips an inflatable rubber bag, shaped like an hour-glass, over the tube introduced into the bladder at the cystostomy, preliminary to prostatectomy. This bag is introduced into the bladder incision, the narrow part fitting to the skin. When it is inflated, the round bulge on each side of the narrow part plugs the opening, and holds the whole in place, while the urine passes off through the central tube.

Operative Treatment of Undescended Testis.—Bruskin denounces the practice of removing the ectopic testis, saying that every effort must be made to provide favorable conditions to promote the internal secretion of the testis. He advocates this even in the elderly. The disadvantages of the various methods of treatment in vogue are enumerated; the Herzen technic alone answers the purpose, he says, without impairing the circulation in the testis. With this method, the testis is brought down into the scrotum and through an incision in the scrotum and in the skin of the adducted thigh opposite. The testis is buried under the skin of the thigh by this scrotum-thigh anastomosis, suturing the scrotum to the thigh. The patient gets up the tenth day. As he hobbles around, stooping over, the spermatic cord stretches more and more until he can stand upright, and there is no danger of the cord's retracting when released. This gradual stretching leaves the physiologic conditions unimpaired, and in four or six weeks the testis can be slipped back into the scrotum and the thigh released. Injury of the testis seems impossible with this self-stretching method as pain warns against overdoing. The drawbacks are the tediousness and the two operations required; but Bruskin says that the brilliant advantages compensate for all this. He describes five cases in adults with ideal results, confirmed by reexamination.

Zentralblatt für Chirurgie, Leipzig

50: 1417-1488 (Sept. 15) 1923

Postoperative Tetany After Operation in Exophthalmic Affections. E. Melchior.—p. 1422.
*Quinin in Exophthalmic Goiter. Kleinschmidt.—p. 1422.

Quinin Hydrobromid in the Preliminary and After-Treatment of Exophthalmic Goiter.—Kleinschmidt used quinin hydrobromid for preliminary treatment in more than fifty cases of exophthalmic goiter and compares the results with about the same number of cases in which no preliminary treatment was given. The results speak very favorably for quinin in the preoperative and postoperative treatment of this disease. The patients received, about a week before the operation and for a corresponding period afterward, two or three times daily, 0.25 gm. of quinin hydrobromid by mouth. The pulse diminished from ten to fifteen beats a minute during the preliminary treatment. At the same time, subjective and objective improvement in the existing nervousness was noted. After the operation, the pulse curve rose but, on the average, remained from twelve to fifteen beats lower than the average for the patients who had received no preliminary treatment. The pulse on dismissal of the patients ranged from 80 to 85 for those who had received preliminary treatment and from 95 to 96 in the others. The quality of the pulse was also good, and postoperative excitement was rarer and less marked.

Zentralblatt für Gynäkologie, Leipzig

47: 1473-1488 (Sept. 15) 1923

Trials with the Sellheim Inflator for Testing the Patency of the Fallopian Tubes. H. Sellheim.—p. 1473.
*Abdominal Versus Vaginal Operation. J. Halban.—p. 1481.
*Blindness After Uterine Hemorrhages. D. [illegible]—p. 1484.

Abdominal Versus Vaginal Operation in Carcinoma of the Cervix.—Halban found the abdominal and the vaginal method of operation in carcinoma of the cervix of practically equal value. Accordingly the choice of method may be left to the operator. A combination of the two methods might give better results when the abdominal walls are unusually thick or the Trendelenburg position is contraindicated.

Onset of Blindness in Connection with Hemorrhages of the Reproductive Organs.—[illegible] reports a case in which a woman, aged 52, became blind in both eyes following severe and long continued hemorrhages of the uterus during the menopause. Vision had been previously normal.

Zentralblatt für innere Medizin, Leipzig

44: [illegible] (Aug. [illegible]) 1923

*Capsella in Place of Ergot and Hydrastis. F. [illegible]—p. [illegible]

Capsella in Place of Ergot and Hydrastis.—[illegible] recommends extracts of *Capsella bursa pastoris* instead of ergot and hydrastis. Its styptic action was known to Dioscorides and Paracelsus.

Casopis lékařův českých, Prague

62: [illegible] (Sept. [illegible]) 1923

*Dangers of Tuberculin Reactions. E. Vasek.—p. [illegible]
*Fight Against Cancer. J. Nemec.—p. [illegible]
Tuberculin in Surgical Tuberculosis. [illegible]—p. [illegible] Conc'n.
Soft Catheter for the Lacrimal Duct. [illegible]—p. [illegible]

Dangers of Tuberculin Reactions.—Vasek publishes three cases of apparent though transitory injury of the eyes in tuberculous patients after diagnostic injections of old tuberculin.

Fight Against Cancer.—Nemec publishes statistics of the necropsy findings in [illegible] cases of malignant tumors among 25,919 necropsies performed in the last twenty-six years in Hlava's Institute in Prague. Of 100,000 persons living in Bohemia and Moravia, about 100 die every year from cancer.

62: [illegible] (Sept. [illegible]) 1923

Papulotuberculoid Syphilis. V. [illegible]—p. [illegible] Cont'd.
Confusional States. A. Heveroch.—p. [illegible] Cont'd.
Blood Transfusion. J. Diviš.—p. [illegible] Cont'd.
*Preservation of Fruit Juices. G. Kabrhel.—p. [illegible] Conc'n.

Preservation of Fruit Juices.—Kabrhel considers the addition of 0.25 per cent. formic acid to fruit juices innocuous.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: [illegible] (Sept. [illegible]) 1923

*The Pyramidal Chest. A. J. P. van den Broek.—p. [illegible]
*Malaria at Amsterdam Region. [illegible]—p. [illegible]
*The High Blood Pressure Question. [illegible]—p. [illegible]
*Hortega's Third Element in the Central Nervous System. A. Gans.—p. [illegible]
*Dilute Tuberculin Treatment. J. [illegible]—p. [illegible]
[illegible]
[illegible]
[illegible]

The Pyramidal Chest.—Van den Broek analyzes the mechanical factors responsible for the cylindrical or pyramidal shape of the chest. It is common in asthma, and is [illegible] in the young and it does not seem to have any connection with asthma.

Malaria in the Netherlands.—[illegible] reports his own experience in Amsterdam and the epidemiologic data in twenty-seven cases. In one woman, aged 42, the [illegible] vomiting and slight mental confusion suggested an acute brain affection.

High Blood Pressure.—[illegible] gives his impressions from the discussion of the hypertension question at the recent congress of internal medicine at Vienna. Volhard's classification of hypertension subjects as "ruddy" and "pale" does not conform to [illegible] observations in [illegible] cases. Many persons with pallor from vascular spasm have normal kidneys, and vice versa. Volhard remarked that he advanced this classification merely to arouse discussion, saying that it will "act like a ferment." [illegible] adds that a ferment is not always harmless. Polycythemia was found in some of the "ruddy" cases. Volhard's statement that acute nephritis is secondary to general vascular constriction conflicts with [illegible] observation that the blood pressure often returns to normal after [illegible] of acute nephritis. This seems to indicate that the acute nephritis is the cause if not the consequence of the vascular spasm. [illegible] discusses further Volhard's dictum that no one nowadays should die from acute nephritis. Such exaggerated statements regarding the hypertension might result in harm.

The Third Element in the Central Nervous System.—Gans gives a photomicrogram showing the cells of Del Rio Hortega's third element in the brain cortex. He describes the new technic which made this discovery possible, and Spatz and [illegible] deductions as to the import of Hortega's third element in general paralysis.

Dilute Tuberculin Treatment.—[illegible] reports [illegible] of [illegible] method of treating tuberculosis with extremely dilute tuberculin. No advantage from it over the controls was evident in any instance.

[illegible]

[illegible]

[illegible]
[illegible]
*[illegible]
[illegible]
[illegible]
[illegible]
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[illegible]

[illegible]

likewise governed by colloid chemical factors. This can be demonstrated by distributing 1.5 c.c. of an isotonic solution of different alkali salts in test tubes. Then 60 c. mm. of blood is added, and after standing for fifteen minutes, 0.25 c.c. of a suspension of rice starch containing 50 mg. per c.c. is added. The tubes are then put in the incubator for half an hour, and shaken every five minutes. Then 1.5 c.c. of a 2 per cent. acetic acid solution is added. One good drop is allowed to dry on an object glass, colored with methylene blue. By counting 300 or 400 leukocytes, the proportion which have absorbed the starch grains is determined. The same factors which are decisive for the colloidal condition of the hydrophilic colloids determine also phagocytosis.

Test for Quinin.—Laoh advocates the picric acid test of the urine as a simple and reliable test of whether the quinin prescribed is being taken or absorbed properly. When a few drops of the 1 per cent. picric acid solution used in the Esbach test for albumin are added to a cooled and filtered quinin urine, a precipitate forms, first cloudy, then diffuse. This disappears on heating and returns when cooled again. (A precipitate of albumin increases when heated, and settles to the bottom on standing.) The urine of an adult who has taken 0.2 gm. of quinin gives a positive reaction in an hour.

Acta Chirurgica Scandinavica, Stockholm

Supplement **4**: 1-91, 1923

*Pathogenesis of Exophthalmic Goiter. J. Holst.—p. 1.

Pathogenesis of Exophthalmic Goiter.—Holst remarks that this disease interests internists and surgeons, pathologists, oculists and laryngologists as well as gynecologists, neurologists and psychiatrists, and his study of 300 cases took him into all these special fields as well as that of physiologic chemistry. All the testimony thus accumulated points to the formation of epithelial tumors in the thyroid as the essential element in all cases of primary thyrosis, which includes primary and secondary exophthalmic goiter, hyperthyroidism and thyrotoxicosis. The abnormal proliferation of the epithelial tissue starts the vicious circle. Causal treatment must aim to combat this: resection, ligation, roentgenotherapy, alone or combined. This pathogenetic conception explains the occasional spontaneous recovery as due to retrogressive changes which arrest further development of the microscopic epithelial tumors, while there is still enough normal thyroid tissue left to carry on its work. Fatty degeneration of the epithelium may progress to such a point that the symptoms of exophthalmic goiter may yield to those of myxedema. A slow pulse and the absence of alimentary glycosuria in exophthalmic goiter are symptoms that belong to the encroaching myxedema. "The riddle of the sphinx—the cause of the tumor formation—is still unsolved, but the sphinx itself has been dug out until now we can see its entire shape and the base on which it rests, namely, the thyrosis and the exophthalmic adenomas." His article is in German, with thirty-three photomicrograms and a colored plate showing the various phases of the process. He recalls that primary exophthalmic goiter does not occur endemically, while the secondary form is endemic in most cases. The exophthalmic goiter functions with a variability of autonomy and a mixture of excess and deficit which correspond to the mixture of abnormal tissue proliferation and enhanced tendency to degeneration that characterize parenchyma tumor growth in general.

Acta Medica Scandinavica, Stockholm

58: 515-611 (Sept. 25) 1923

Counting the Blood Platelets. O. Thomsen.—p. 515.
*Wilon's Pseudosclerosis. G. Söderbergh.—p. 519.
*Volume of Lungs. C. Lundsgaard and K. Schierbeck.—p. 541.
*Influenzal Encephalitis. R. Jaksch-Wartenhorst.—p. 557.
Sugar Content of Blood. K. Marie Hansen.—p. 585.
Iron in Anemia. E. Meulengracht.—p. 594.

Wilson's Pseudosclerosis.—Söderbergh points out the fallacies of our present knowledge of the extrapyramidal syndrome. Wilson's pseudosclerosis is something much more extensive and complicated than a simple lesion of the lenticular nucleus.

Volume of Lungs.—Lundsgaard and Schierbeck examined twelve patients with emphysema. They found a normal volume of the lungs, but an increase in the residual air, with a corresponding decrease in the vital capacity, affecting especially the residual air.

Influenzal Encephalitis.—Jaksch-Wartenhorst states that every form of influenza may be followed by an encephalopathy. The period of latency may be over a year. Over eighteen pages of literature are added.

Hygiea, Stockholm

85: 705-752 (Sept. 15) 1923

Berzelius and Hwasser: Historical Sketch. H. G. Söderbaum.—p. 705.
*Pathogenesis of Spasmophilia. K. Wejdling.—p. 720.
Systems of Graphic Records. Sömme.—p. 730.

Pathogenesis and Treatment of Spasmophilia.—Wejdling comments on the light thrown on tetany by the discovery that in genuine epilepsy the blood gives an alkaline reaction just preceding a seizure. Treatment should aim to combat the alkalosis, and ammonium chlorid seems to be most effectual for this. György has demonstrated that ammonium chlorid induces a lively elimination of phosphates, a phosphate diuresis. The resulting acidosis mobilizes calcium, and restores the normal balance between the calcium and phosphate in the blood. The ammonium chlorid is thus an indirect calcium treatment but it is exclusively symptomatic. Cod liver oil and the quartz lamp combat the diathesis, the rickets, and only indirectly the manifestations of tetany, by curing the underlying diathesis. György found that in one or two days all the manifest symptoms of spasmophilia vanished with a daily dose of 5 gm. of ammonium chlorid by the mouth. Wejdling recalls that fever tends to induce alkalosis—latent tetany is liable to flare up under an infectious fever; also that breast milk contains less phosphates than cow's milk, and that fasting tends to induce acidosis, all of which have a bearing on treatment of spasmophilia.

Ugeskrift for Læger, Copenhagen

85: 685-698 (Sept. 27) 1923

Graphic Records of Lung Findings. S. Bang.—p. 685.

85: 699-716 (Oct. 4) 1923

Dermatosis from Fur Dye. Jacobsen.—p. 699.
*Test for Urea in Blood. J. Christiansen.—p. 700.
*Boarding Out the Insane. A. G. J. Elmquist.—p. 705.

Test for Urea in the Blood.—Christiansen states that he has been applying for the last year Steinfield's method as described in The Journal, Aug. 14, 1920, p. 473. He has found it often extremely useful for the differential diagnosis and to supervise progress from day to day. In one patient the urea nitrogen increased by 100 per cent. every day until decapsulation of the kidney. Then the percentage dropped in the course of one day from 150 mg. to 20 mg. The normal limits in all his numerous tests coincided with those of Steinfield.

Boarding Out the Insane.—Elmquist reviews the experiences with "family care" of the mild insane in the Djursland district in the last twenty years. The method here differs from that at Gheel and in Scotland in that the families selected reside near the insane asylum, and the supervision of the insane thus boarded out is entrusted to the local general practitioner. At present there are 110 patients thus placed in families in Djursland, which is a farming district on a peninsula. He explains that the family must take the insane patient into its actual family life and work, and both family and patient have to be selected with care. At present, 75 øre (about 20 cents) per day is paid for the lodging, board, washing and mending. The hospital supplies clothes. He describes a few instances of the complete transformation of the insane in the quiet homelike environment. The pride displayed by the family in such a transformation brings new applications for "patient boarders"; the larger the number of families willing to take these charges, the greater the freedom of choice. The local practitioner is the best judge of the conditions in the families. The custom has recently been introduced of having the patients brought back to the hospital once a week for a bath and inspection of the clothing. Some member of the family drives them in, and they bathe and have coffee, and regard it as a kind of picnic.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 81, NO. 24 CHICAGO, ILLINOIS DECEMBER 15, 1923

A SALIVARY INDEX TO RENAL FUNCTION *

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I. THE CLINICAL USE AND SIGNIFICANCE OF THE SALIVARY UREA INDEX

That the determination of the blood urea is the most valuable test for estimating renal impairment with regard to retention of nitrogenous metabolites is generally recognized. However, the estimation of the blood urea, although a comparatively simple procedure if certain laboratory facilities are available, is too complicated and laborious for the use of the general practitioner.

Urea is easily diffusible and is almost uniformly distributed in all tissues [1] and fluids of the body, including the spinal fluid and mammary gland excretion.[2] Myers and Fine [3] report that urea is present in the spinal fluid in 88 per cent. of its blood concentration. If standard solutions of urea are used, 93 per cent. will dialyze in twenty-four hours.[4]

We have demonstrated in a previous paper [5] that the concentration of urea in saliva is practically the same as the concentration of urea in the blood. The salivary urea is estimated from the combined urea and ammonia nitrogen, for there is conclusive evidence that by far the greater part, if not all, of the salivary ammonia nitrogen is a product of urea by hydrolysis. The concentration of urea in saliva varies somewhat in different persons. The probable causes of variation and the exact relationship between the salivary urea and the blood urea are discussed in detail in a previous paper,[5] and in Part II of this paper.

The average value of urea concentration in the saliva is approximately 80 per cent. of that of the blood urea. Therefore, for practical purposes 16 mg. of combined ammonia and urea nitrogen for each 100 c.c. of saliva has been considered the upper limit of normal, corresponding to 20 mg. of urea nitrogen for each 100 c.c. of blood.

In cases of urea retention, the combined ammonia and urea nitrogen of the saliva is increased in definite amounts, and closely parallels the urea nitrogen of the blood. This fact is of practical significance in determining renal function, since the availability of saliva recommends it for practical usage. The value of determinations of salivary urea would still further increase with the development of a method sufficiently accurate and easier of application than the urease method. Such a method, based on the mercury combining power of saliva, has been developed.

HISTORICAL NOTES

The combination of urea with mercuric nitrate, forming a complex mercuric salt, was used by Liebig,[6] in 1853, as a basis for his method for the determination of urea in urine. Pflüger [7] showed that under the varying reactions of the urine incident to the method, not only urea, but all the nitrogenous compounds of the urine were precipitated by the mercury; and Freund and Fellner [8] made this fact a basis for a method for fractional precipitation of all nitrogenous substances from the urine. That sodium chlorid is a mercury combining substance, forming mercuric chlorid from the mercuric nitrate, was recognized by Liebig and some of the earlier workers, who made a correction for this in their nitrogen methods. By using mercuric chlorid as the combining mercuric salt, Freund and Fellner obviated the need for such a correction.

Friedländer,[9] in 1921, described a rapid titrimetric method for the determination of urea in urine, in which mercuric chlorid was used. As an end-point he used the first appearance of a "red mercury carbonate" (rotes kohlensäures Quecksilber) which is formed when a drop of the titrated urine is added to a drop of sodium carbonate, thus showing the presence of an excess of mercuric chlorid in the urine. He maintained that the values obtained represent other nitrogenous substances of the urine besides the urea. Uric acid, creatinin and amino-acids all combine with mercury, but are present in the urine in so much smaller quantities, and use so much less mercury proportionately than does urea, that Friedländer believed they did not impair the values of the urea determinations for clinical purposes. We have adopted for our use a modification of this method. A critical study of the details in the development of our technic is described in Part II.

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* Work done under the direction of Dr. Leonard G. Rowntree in the Division of Medicine, Mayo Clinic.

[1] Marshall, E. K., Jr., and Davis, D. M.: Urea: Its Distribution In and Elimination From the Body, J. Biol. Chem. **18**: 53-80, 1914.

[2] Denis, W.; Talbot, F. B., and Minot, A. S.: Non-Protein Nitrogenous Constituents of Human Milk, J. Biol. Chem. **39**: 47-51, 1919. Taylor, W.: Note on the Non-Protein Nitrogen in Goat's Milk, Biochem. J. **16**: 611-612, 1922.

[3] Myers, V. C., and Fine, M. S.: Comparative Distribution of Urea, Creatinin, Uric Acid and Sugar in the Blood and Spinal Fluid, J. Biol. Chem. **37**: 239-244 (Feb.) 1919.

[4] Chauffard, A.; Brodin, P., and Grigaut, A.: Diffusibilité dialitique comparée de l'urée du chlorure de sodium de l'acide urique et du glucose, Ann. de méd. **12**: 257-262 (Oct.) 1922.

[5] Hench, P. S., and Aldrich, Martha: The Concentration of Urea in Saliva, J. A. M. A. **79**: 1409-1412 (Oct. 21) 1922.

[6] Liebig, J. V.: Ueber einige Harnstoffverbindungen und eine neue Methode zur Bestimmung von Kochsalz und Harnstoff im Harn, Ann. d. Chem. **85**: 289-328, 1853.

[7] Pflüger, E.: Ueber die quantitative Bestimmung des Harnstoffs, Arch. f. Physiol. **21**: 248-286, 1880; Ueber die Titration des Harnstoffs mit mercurinitrat nach der Methode von Rautenberg und Th. Pfeiffer, ibid. **40**: 533-586, 1887.

[8] Freund, E., and Fellner, R.: Ueber Bestimmung der stickstoffhaltigen Urinbestandtheile mit Sublimat, Ztschr. f. physiol. Chem. (Hoppe-Seyler's) **36**: 401-406, 1902.

[9] Friedlander, E.: Titration des Harnstoffes im Urin für klinische Zwecke, München. med. Wchnschr. **68**: 1225-1226 (Sept. 23) 1921.

TECHNIC

Collection of Specimen of Saliva.—The mouth is washed out with one-half glass of water, and a small piece of paraffin is used to stimulate the salivary flow. Two specimens of about 8 c.c. each are collected.

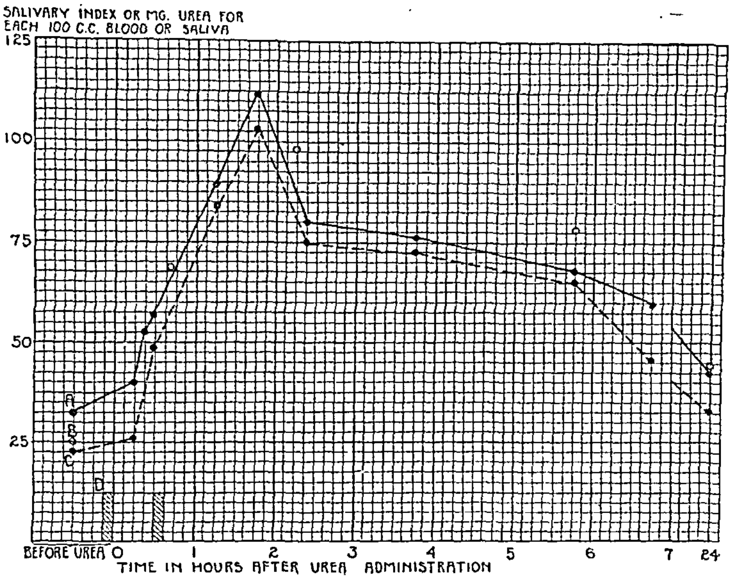

Chart 1.—Parallel changes in blood and saliva of a normal person following administration of 50 gm. of urea by stomach tube: solid line, salivary urea index; *O*, blood urea; broken line, salivary urea (urease method); shaded columns, 25 gm. urea.

The first or preliminary specimen, which removes food particles or excess of epithelial débris, is discarded, or may be used as a check on the second specimen, which is used for titration. Filtration of saliva is unnecessary.

Mercury Titration.—Two solutions are used, a 5 per cent. solution of mercuric chlorid, and a 7 per cent. (saturated) solution of sodium carbonate (anhydrous). This latter is approximately equivalent to a 20 per cent. solution of sodium carbonate crystalline (Na_2CO_3 $10H_2O$), or 8.5 per cent. of monhydrated sodium carbonate U. S. P. To 5 c.c. of saliva in a small flask or tube is added the mercuric chlorid solution from a buret, until a test drop of the titrated saliva, when added to a drop of the sodium carbonate on a white tile, shows a prompt formation (within three seconds) of a definite brown precipitate of a mercury oxychlorid, which is formed by the combination of mercuric chlorid and excess sodium carbonate.[10] It was found that 5 c.c. of saliva requires a minimum of 1.5 c.c. of mercuric chlorid. Hence this amount should be added before a test drop is removed. As titration progresses, a deepening canary yellow color appears on adding test drop to the sodium carbonate; but the true end-point is the first appearance of a reddish brown precipitate.

This titration measures the total mercury combining power of the saliva. The appearance of the oxychlorid shows that the mercuric chlorid has ceased to combine with substances in the saliva and is free to react with the carbonate. The titration figure for 5 c.c. of saliva, multiplied by 20, gives the number of cubic centimeters of mercuric chlorid used for 100 c.c. of saliva. The mercury combining power of 100 c.c. of saliva we have called the "salivary urea index."

DETERMINATION OF NORMAL SALIVARY UREA INDEX

Fifty grams of urea was given to one of us (P. S. H.) by stomach tube to avoid contamination of the saliva, and a temporary urea accumulation in the blood was thus produced. The salivary urea, calculated from the ammonia and urea nitrogen, the blood urea by the urease method, and the salivary urea index were determined at intervals (Chart 1).

There was a distinct and continuous parallelism of the three values, as the urea increased and decreased in the blood. The salivary urea index varied directly with changes in the concentration of urea in saliva and blood. Obviously, the information gained from one estimation was of similar value to that obtained from the other two.

Subsequently, about 900 estimations of the salivary urea index were made in a series of about 600 persons, to determine (1) the variations in the salivary urea index in normal persons, and (2) the variations in the salivary urea index in patients in whom urea retention was evidenced by an increased blood urea.

The normal salivary urea index was determined from saliva collected from 442 persons whose renal function was considered normal. They included eighteen laboratory workers, 337 patients whose blood urea was obtained and found to be between 12 and 40 mg. for each 100 c.c., and eighty-seven patients whose blood urea was not obtained, but who had normal phenolsulphonephthalein excretion, normal urinalysis, and no subjective nor objective evidence of renal damage with retention. Six hundred and sixty-seven titrations of the salivary urea index were made on this group. At the onset of the work a single specimen of saliva was taken. Eighty-two per cent. gave an index value of from 30 to 50 (that is from 30 to 50 c.c. of 5 per cent. mercuric chlorid for each 100 c.c. saliva), while 18 per cent. crept above the value of 50 to values which later were proved to be generally an indication of beginning retention. This overlapping area was materially reduced by using the second specimen of a fractionated salivary collection, as described in discussing

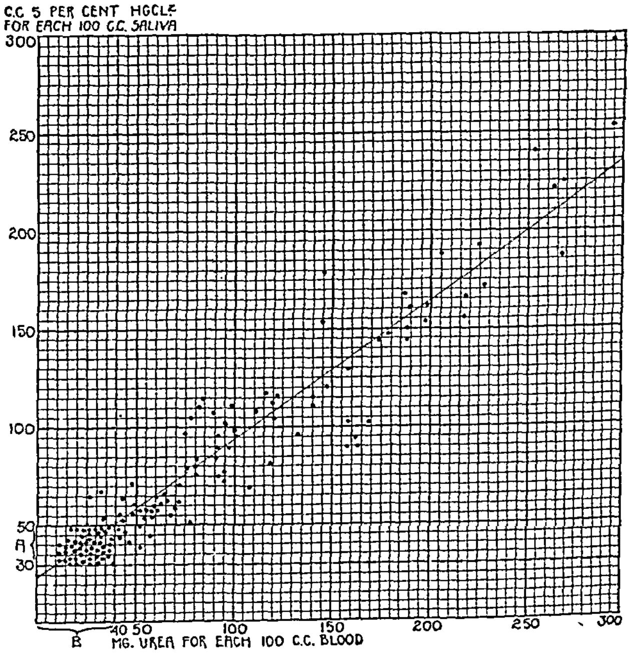

Chart 2.—Relation between blood urea and the salivary urea index: ordinate, salivary urea index; abscissa, blood urea. *A*, normal range of the salivary urea index; *B*, the normal range of blood urea.

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[10] Schmidt, E.: Ausführliches Lehrbuch der pharmazeutischen Chemie, Ed. 6, Braunschweig, F. Vieweg, 1919, p. 748.

the technic. Thus, 92 per cent. of 190 estimations made on the second specimen of fractionated salivary collections gave an index between 30 and 50. This explains the necessity for making fractional collections.

Most of these estimations were made on ambulatory patients at the Mayo Clinic, who were sent for salivary analyses immediately after their blood was collected. The routine fractional method for salivary collection was used, and no special attention was given to persons whose mouths were in bad condition. It is probable that the 8 per cent. overlapping group might have been still further reduced if checks had been available in some of these instances in which the index value was disproportionate to the blood urea.

SALIVARY UREA INDEX IN PERSONS WITH UREA RETENTION

Several cases of prolonged retention were studied over long periods of time.[11] In the following cases the changes in the salivary urea index and the fluctuations in the blood urea were most strikingly parallel. Their histories are given in brief detail in order to emphasize the clinical applicability of the test.

TABLE 1.—*Laboratory Data in Case 1*

Date	Salivary Urea Index	Blood Urea, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.
1/20/23	..	..	35
1/26/23	..	21	..
2/15/23	224	..	..
2/17/23	..	266	..
2/19/23	73	96	..
2/22/23	36	42	..

TABLE 2.—*Laboratory Data in Case 2*

Date	Salivary Urea Index	Blood Urea, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.
12/13/22	192	226	..
12/14/22	..	..	No return
12/16/22 to 2/17/23	..	..	5-10-15
2/18/23	90	100	10
2/20/23	108	112	..
2/24/23	90	96	..
2/27/23	78	80	..
3/ 2/23	..	..	15
3/ 3/23	72	64	..
3/ 7/23	66	66	..
3/ 9/23	60	56	..
3/10/23	54	..	..
3/16/23	57	52	15
3/20/23	66	60	..
3/23/23	60	62	..
3/27/23	60	68	..
3/30/23	66	60	..

TABLE 3.—*Laboratory Data in Case 3*

Date	Salivary Urea Index	Salivary Urea, Mg. for Each 100 C.c.	Blood Urea, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.
1/ 8/23	240	306	252	..
1/12/23	168	231	187	..
1/15/23	108	103	...	..
1/16/23	...	...	...	30
1/17/23	102	98	96	..
1/22/23	45	30	29	..
1/24/23	...	...	...	50
1/29/23	40	24	20	..

CASE 1.—Mr. L. A. Van H. came to the clinic, Jan. 3, 1923, complaining of backache and hematuria. Examination of the urine revealed albumin 2, erythrocytes 1 and pus 1, and was negative for tuberculosis bacilli. A diagnosis of left hypernephroma was made, and left nephrectomy was performed, February 6. Acute postoperative uremia occurred.

CASE 2.—Mr. P. O. came to the clinic, Dec. 9, 1922, complaining of acute and chronic retention. This patient was observed over a considerable period of time. The bladder was gradually decompressed. A diagnosis of hypertrophied prostate 2 with uremia was made.

CASE 3.—Mr. B. D. came to the clinic, Dec. 26, 1922, complaining of bladder trouble. Examination of the urine revealed pus 3, erythrocytes 1, and positive stain for tuberculosis bacilli. The phenolsulphonephthalein return was 50 per cent. Pyelographic and cystoscopic examinations confirmed the diagnosis of renal tuberculosis, and right nephrectomy was performed, December 30. Acute retention ensued.

TABLE 4.—*Laboratory Data in Case 4*

Date	Salivary Urea Index	Salivary Urea, Mg. for Each 100 C.c.	Temperature	Pulse
4/ 8/23	54	..	Normal	Normal
4/10/23	..	..	103	135
4/11/23	..	..	103	130
4/12/23	71	70.5	99.5 to 102.5	112 to 102
4/14/23	..	..	Normal	Normal
4/17/23	54	..	...	...
4/19/23	32	34	...	...

TABLE 5.—*Probable Equivalents in Blood Urea, Derived from Salivary Urea Index*

Titration Figure, C.c. 5 per Cent. Mercuric Chlorid for 5 C.c. Saliva	Salivary Urea Index	Probable Equivalent in Blood Urea, Mg. for Each 100 C.c.
1.5	30	10
2.0	40	24
2.5	50	40
3.0	60	53
3.5	70	67
4.0	80	81
4.5	90	95
5.0	100	109
5.5	110	124
6.0	120	138
6.5	130	152
7.0	140	166
7.5	150	180
8.0	160	195
8.5	170	209
9.0	180	223
9.5	190	237
10.0	200	250
10.5	210	265
11.0	220	279
11.5	230	294
12.0	240	307

CASE 4.—Mrs. H. C. came to the clinic, Jan. 1, 1923, and a diagnosis of bilateral pyelonephritis was made. Examination of the urine revealed pus 3 and 4, albumin 2, and erythrocytes 1. The blood urea was 20 mg. The temperature and pulse rate were normal. The patient was dismissed from observation, but returned to the clinic, March 23. At this time blood urea could not be obtained. The salivary urea index was determined, April 8. Two days later the patient developed high temperature and rapid pulse rate, with headache and nausea. This case illustrates the possibility of studying urea retention when blood urea estimations are impossible.

COMPARISONS BETWEEN THE SALIVARY UREA INDEX AND BLOOD UREA

Seven hundred and four determinations of blood urea and the salivary urea index were made on 493 persons. The two tests were usually taken within an hour, and never more than a few hours apart. The urea levels, as indicated by the blood urea, were between 12 and 300 mg. The results of the tests on all patients with a blood urea value of 70 mg. or over are charted. Below this value a representative series is shown. It will be seen that the salivary urea index increased directly with the degree of urea retention as indicated by the blood urea (Chart 2).

In order to determine the clinical significance of single index estimations in terms of blood urea, and to ascertain the most p[illegible] [illegible]ship the two values in the entire series, a "line of probability" was arbitrarily drawn and is shown in Chart 3. From this chart the probable equivalents may be found. A table (Table 5) of these probable equivalents is also given, which merely expresses in another way the values as shown in Chart 3.

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[11] These cases were reported briefly by Hench, P. S.: Salivary Urea and the Mercury Combining Power of Saliva: A New and Simple Index of Renal Insufficiency, M. Clin. N. Am. 7: 123-134 (July) 1923.

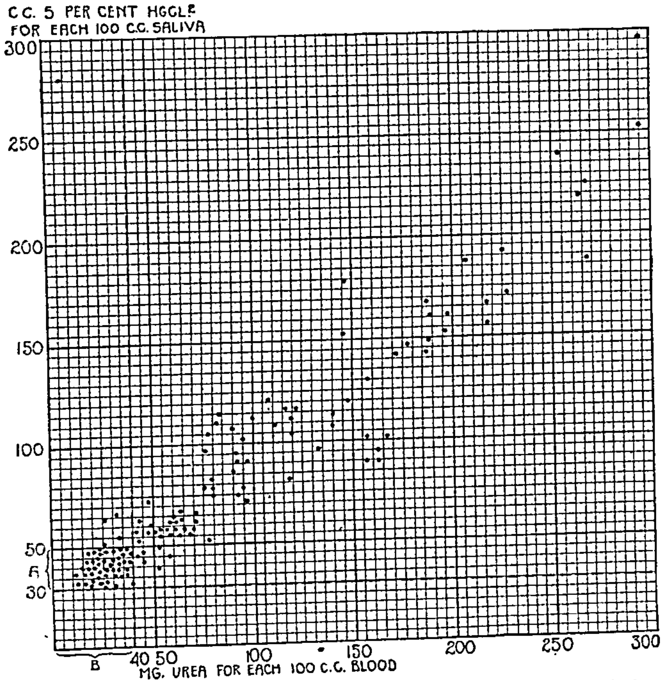

Chart 3.—Relation between blood urea and the salivary urea index: ordinate, salivary urea index; abscissa, blood urea. The line indicates the probable blood and saliva equivalents throughout the range of values of the chart. *A*, normal range of the salivary urea index; *B*, the normal range of blood urea.

By the application of the mathematical formula for the analytic expression of a straight line ($y = mx + b$), a formula for the estimation of the probable equivalents is obtained: $S = mB + b$, in which S = salivary urea index, B = blood urea, m = the value for the slant of the line, b = the particular constant obtained from the figure used; or, $B = 1.43 \times S - 34$, in which B = blood urea, and S = the salivary urea index.

Thus, without consulting Chart 3 or Table 5, the probable equivalent of any salivary urea index may be obtained in terms of blood urea. For example, if the salivary urea index is 100, $B = 1.43 \times 100 - 34$, the probable blood urea = 109 mg. for each 100 c.c.

COMMENT

In a large series of cases, variations may be expected, and the scattering of dots in Charts 2 and 3 denotes the variations in our series. Some of these variations are undoubtedly due to the fact that the values represent analyses made in cases in which only a single specimen of saliva was obtained; others may be due to individual variations in the relation between the concentration of urea in the blood and the saliva. This relation is discussed in detail in Part II. Chart 3 shows the probable equivalents of the two values, as well as the observed variations in them. In about 8 per cent. of the determinations of the fractional series, the salivary urea index indicated a mild retention in cases in which the blood urea was within normal limits. In about the same percentage (all determinations) the salivary urea index did not indicate a retention in cases in which the urea of the blood was slightly increased. No index value below 50 was obtained in the presence of a blood urea of 60 mg. or more. With a normal blood urea the salivary urea index never indicated a retention of more than 60 mg.

It will be observed that in the normal range of blood urea values, from 12 to 40 mg. for each 100 c.c., the salivary urea index varies somewhat indiscriminately between 30 and 50; but with a blood urea value above 40 mg. for each 100 c.c., the variability is less significant. With urea retention, the other retained substances, uric acid, creatinin, amino-nitrogen, and so forth, which are included in the mercury titration, increase very slightly, or not at all, as compared with the rise in urea itself. Although we do not claim that the salivary urea index gives accurate figures for the blood urea in each case, the parallelism between blood urea and the salivary urea index is sufficiently established, and therefore a high salivary urea index can be accepted by itself as indication of nitrogen or urea retention.

The method may be used as an office test for detecting cases of retention. It is advocated for hospital practice as a routine before blood urea estimations are made. High indexes definitely denote retention; borderline index values indicate the need of blood studies. Cases may also be followed daily, with occasional blood urea checks, and the discomforts and inconvenience of unnecessary venipunctures avoided.

CONCLUSIONS

1. The mercury combining power of saliva was determined in 888 instances on 598 persons in an effort to ascertain its significance in regard to renal functional capacity. A salivary urea index of renal function has been evolved.[12]

2. The salivary urea index denotes the number of cubic centimeters of a 5 per cent. solution of mercuric chlorid used for each 100 c.c. of saliva. In 92 per cent. of estimations on 190 normal persons, the salivary urea index was between 30 and 50.

3. The salivary urea index increases in definite parallelism with urea retention, as evidenced by the blood urea.

4. The probable relationship between the salivary urea index and the blood urea may be expressed by a formula which is given to assist in the clinical interpretation of the salivary urea index; but it is sufficient to know that high salivary urea indexes denote definite renal insufficiency.

5. The results of this series indicate that, when a salivary urea index below 50 is obtained, there is, in nearly 90 per cent. of the cases, no urea retention in the body. There is a 10 per cent. possibility that mild retention exists, but not in any case does it exceed the blood urea value of 60 mg. When a salivary urea index above 50 is obtained, there

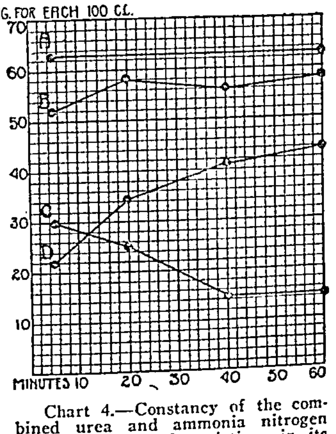

Chart 4.—Constancy of the combined urea and ammonia nitrogen of the saliva, and variations in its components during salivation for a period of one hour, in a case of urea retention: *A*, blood urea nitrogen; *B*, salivary combined urea and ammonia nitrogen; *C*, salivary ammonia nitrogen; *D*, salivary urea nitrogen.

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[12] Although no special laboratory accessories are needed, a simple compact apparatus in a small portable container has been designed, and may be obtained from Hynson, Wescott and Dunning Company, Baltimore.

is in 91 per cent. of cases definite urea retention, and only a 9 per cent. possibility that there is no retention.

6. The estimation of the salivary urea index is advocated as a substitute for certain blood urea determinations. In doubtful cases it may be controlled by the blood urea.

II. A DISCUSSION OF SALIVARY UREA AND THE MERCURY COMBINING POWER OF SALIVA

By MARTHA ALDRICH, A.B., AND PHILIP S. HENCH, M.D.

Urea is present in saliva as in all other body fluids. We have shown that when urea retention occurs, throughout the body, the combined ammonia and urea nitrogen of the saliva is increased proportionately to the increase in blood urea nitrogen.[5] These findings have since been corroborated by Schmitz[13] and Landsberg.[14] The latter, however, dismisses as of "*no importance* for practical purposes" the varying amounts of ammonia found in the saliva. We have frequently found ammonia present in large amounts with only small amounts of urea, and wish to emphasize again that it is only by considering this ammonia as derived from urea by hydrolysis that a true estimation of the urea content of the saliva may be obtained. Chart 4 illustrates this point.

In four specimens collected over a period of one hour from a patient with urea retention, the salivary combined urea and ammonia nitrogen remained practically constant, whereas the high value of the ammonia nitrogen in the first specimen decreased markedly throughout the hour, the urea nitrogen varying universely with the ammonia.

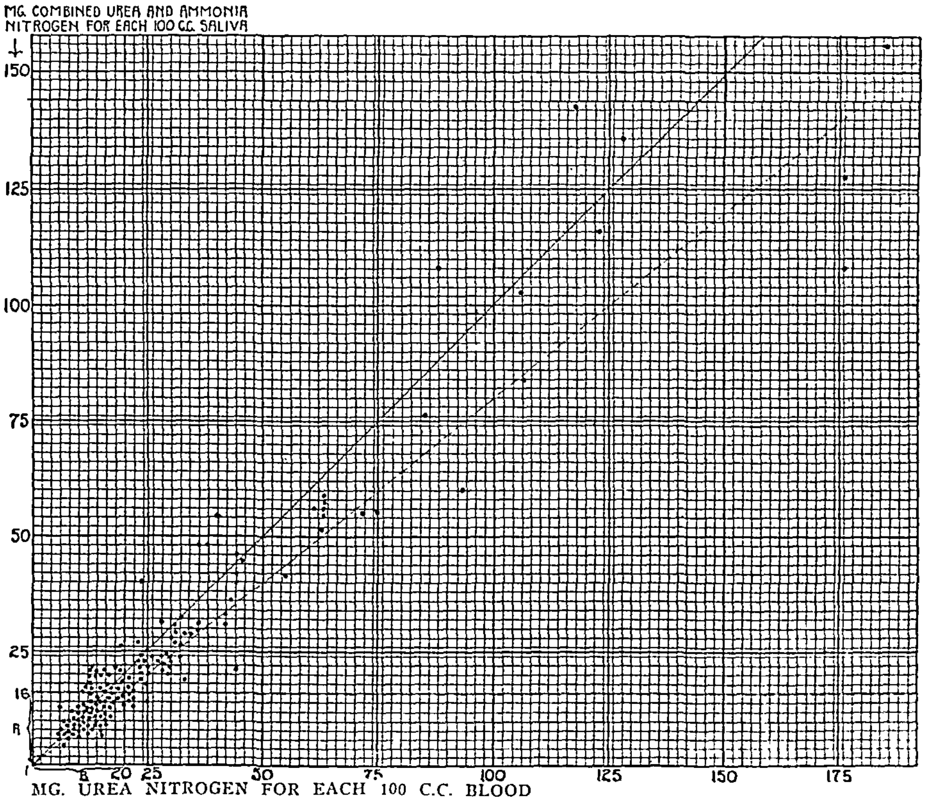

Chart 5.—Relation between blood urea nitrogen and salivary urea and ammonia nitrogen: solid line, the line on which points would fall if the blood urea and salivary urea values were equal; broken line, line on which points would fall if the salivary urea values were 80 per cent. of the blood values.

The relation of the combined ammonia and urea nitrogen of the saliva to the urea nitrogen of the blood in a series of 165 cases is shown in Chart 5. In about 50 per cent. of the cases, the salivary values lie between 80 and 100 per cent. of the blood values; 25 per cent. are higher than the blood values, and 25 per cent. below 80 per cent. of the blood values. These variations between the relative concentration of urea in the blood and saliva may be caused by various conditions:

1. Cases have been observed in which the salivary urea values were higher than those of the blood, owing to the fact that the specimen, although the mouth was rinsed, contained ammonia from sources other than the salivary secretion, such as from decomposed food. More carefully collected specimens from the same persons showed a concentration of urea proportionate to the blood.

2. Apparent variations have occurred in cases in which there have been very rapidly occurring changes in the blood urea, such as often follow operation. Unless blood and saliva estimations are made simultaneously, the relative urea concentrations are not absolutely comparable.

3. It is also apparent that any condition which may cause a change in the permeability of the tissues, with a resultant change in the diffusion rate of urea, may also cause variations between the salivary and blood urea content. Although variations do occur in the relative concentration of urea in saliva and blood, we have demonstrated in Chart 2 that these variations do not impair the clinical value of the salivary urea index, and hence of the salivary urea, in more than 8 per cent. of the cases within a certain range.

In an effort to obtain a simple way of estimating the salivary urea, various methods were tried. The hypobromite method was employed with some success. The use of permutit (an "aluminum silicate" with high adsorptive powers) to determine both the ammonia already formed in the saliva and that obtained by hydrolysis of the urea by urease was theoretically attractive. Since it was difficult to secure perfectly clear solutions on nesslerization, we concluded that such a method could not be generally utilized, although we have recently observed that Stitt[15] advocates this principle as practicable. Schmitz has described a

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[13] Schmitz, H. W.: Comparative Concentration of Urea in the Blood and Saliva in a Series of Pathologic Cases, J. Lab. & Clin. Med. 8: 78-82 (Nov.) 1922.

[14] Landsberg, M.: Ueber dem Harnstoffgehalt im Speichel, Klin. Wchnschr. 2: 306 (Feb. 12) 1923.

[15] Stitt, E. R.: Practical Bacteriology, Blood W[illegible]and Animal Parasitology, Including Bacteriological [illegible] ables, and Explanatory Clinical Notes, Ed. 6, Phi[illegible] 's Son & Company, 1918, p. 633.

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simple method[16] for determining salivary urea, which, however, requires considerable time and laboratory facilities. The determination of the mercury combining power of the saliva by a modification of the Friedländer method for determining urea in urine, which we have adopted, is both rapidly and easily accomplished.

In a study of the principle of this method, determinations were made on solutions of ammonium salts and urea: ammonium chlorid, ammonium sulphate, diammonium phosphate and urea were used. By the same technic as is employed for the saliva titration, with particular attention to the timing of the appearance of the end-point, it was shown that the mercury combining power for each milligram of nitrogen was the same, within the limits of error of the method, for urea and all ammonium salts tested. The results are tabulated in Table 6.

Table 6.—*Mercury Combining Power of Urea and Some Ammonium Salts*

Nitrogen, Mg. 5 C.c. Volume	In Mercuric Chlorid, C.c. for 5 C.c. Solution of			
	Ammonium Sulphate	Ammonium Chlorid	Diammonium Phosphate	Urea
0.2	0.8	0.75	0.83	0.80
0.3	0.97	....	....	1.05
0.4	1.07	1.05	1.09	1.07
0.5	1.32	1.35	1.26	1.4
0.6	1.45	....	....	....
0.8	1.6	....	....	1.65
1.0	1.92	1.8	1.85	2.1
2.0	3.3	2.95	3.13	3.28
3.0	4.27	4.1	4.2	4.25
4.0	5.6	5.27	5.5	5.41
5.0	6.5	6.15	6.15	6.48
6.0	....	7.65	7.2	7.55
8.0	....	9.75	9.95	9.65
10.0	....	11.8	11.45	11.55

It is evident that variations in the ammonia urea ratio of the saliva, which often occur, have no effect on the mercury combining power of the saliva (Table 6). Moreover, the mercury combining power of the saliva is not in simple proportion to the salivary urea; for, although 1 mg. of nitrogen in a standard solution utilizes approximately 2 c.c. of a 5 per cent. solution of mercuric chlorid, 4 mg. of nitrogen does not utilize 8 c.c., but approximately 5.5 c.c. This in no way impairs the clinical value of the test discussed in Part I.

By the use of the same solution of salts, since two were acid, one alkaline and one neutral to methyl red, it was determined that over a range of hydrogen-ion concentration far exceeding that encountered in saliva specimens,[17] the mercury titration figure is the same for each milligram of nitrogen for the ammonium salts tested, and for urea. Ammonium sulphate and urea solutions in a phosphate buffer solution with a hydrogen-ion concentration of about 7.0 gave the same results as are obtained in aqueous solutions.

In the alkaline phosphate solution, a white amorphous precipitate was formed on the addition of mercuric chlorid to the solution. This precipitate did not occur in the acid solution of ammonium sulphate, ammonium chlorid, or in the neutral solution of urea, but the mercury added to the solutions was nevertheless bound in a compound, since there was no immediate formation of a mercury oxychlorid when a drop of the titrated mixture was added to sodium carbonate. Instead of this, a white precipitate was formed with the sodium carbonate, resembling the white precipitate of the alkaline phosphate solution. When the ammonium chlorid solution was cautiously neutralized with sodium hydroxid to a hydrogen-ion concentration of about 7.0, the same white precipitate occurred on addition of mercuric chlorid as in the phosphate solution. As would be expected from the reaction of saliva, a white precipitate occurs on addition of mercuric chlorid.

Liebig's analyses of the various precipitates formed with urea and some mercury salts showed them to be complex substances, composed of the urea and the mercuric oxid; the proportion of the latter in the molecule varied according to the conditions under which the precipitation was made.[6] The precipitate that we obtained was not analyzed.

The mercury combining power of glycin in a phosphate buffer solution was tested and found to be greater for each milligram of nitrogen than that of the ammonia salts: 0.4 mg. of nitrogen utilizing 2.3 c.c. of a 5 per cent. solution of mercuric chlorid; 0.6 mg., 2.9 c.c.; and 1.0 mg., 4.25 c.c.

Besides the ammonia and the urea, some of the substances that occur in the saliva and combine with mercuric chlorid are the amino-acids, creatinin, uric acid, mucin, and in certain cases, albumin. Morris and Jersey[18] have proved that the urea and ammonia content of the saliva is affected only slightly by the stimulation of the glands by paraffin, but that the amounts of the other substances vary greatly. We have not determined the mercury combining power of substances other than urea separately. However, by means of a curve, based on Table 6, we have determined the proportion of mercuric chlorid used in combining with substances of the saliva other than urea and ammonia nitrogen.

In forty cases with normal mercury combining power and normal salivary urea, the proportion of mercuric chlorid used for substances other than the urea and ammonia nitrogen averaged 39 per cent.; in twenty-two cases with urea retention, the proportion of mercuric chlorid for substances other than ammonia and urea nitrogen averaged 35 per cent. This approximate constancy of proportion between the urea and the other mercuric combining substances of the saliva in normal persons, and in persons with retention, may be explained by any one of several interesting conjectures. It offers a distinct contrast to conditions in the blood in which the urea percentage of the total nonprotein nitrogen increases greatly in cases of retention.

Although routinely mixed saliva has been used, it is interesting to note that the mercury combining power of a specimen of pure sublingual saliva was the same as that of mixed saliva from the same individual.

Besides the specific substances of glandular secretions, and the blood extractives, all specimens of saliva contain oral and lingual epithelium, secretions from the mouth, occasional bits of food, and many bacteria. The presence of ammonia-forming bacteria in the saliva makes it necessary either to work on fresh specimens, or to prevent decomposition by killing the bacteria. In warm weather, particularly, bacterial decomposition will change the mercury combining power of the saliva in a few hours. Mucin, on standing, also liberates ammonia. Formaldehyd (2 drops of 10 per cent.) was used as a preservative with some success, but it is more satisfactory simply to bring the saliva to the boiling point. This kills the bacteria and any enzymes present, and the mercury combining power will remain unchanged for several days. One specimen, which was boiled for ten seconds in a test tube, and kept stoppered and sterile, showed no change in two weeks' time in its mercury combining power. The boiling might be expected to drive off ammonia, but determinations of both salivary urea and mercury combining power show that boiling for ten seconds makes no change in the initial ammonia value.

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[16] Schmitz, H. W.: A Simple Method of Estimating the Salivary Urea, J. Biol. Chem. **55**: 1923; Proc. Am. Soc. Biol. Chem., 43-44.

[17] McClelland, J. R.: The Influence of Various Stimuli on Human Saliva, Am. J. Physiol. **63**: 127-141 (Dec.) 1922. Starr, H. E.: Variations in the Hydrogen Ion Concentration of Human Mixed Saliva, J. Biol. Chem. **54**: 55-64 (Sept.) 1922.

[18] Morris, J. L., and Jersey, V.: Chemical Constituents of Saliva as Indices of Glandular Activity, J. Biol. Chem. **56**: 31-42, 1923.

Our technic of collection is also developed to prevent the danger of contaminating substances from decomposed food. The collection of fractional specimens, as described in Part I, has reduced the disproportionate results obtained from the presence of such substances from 18 to 8 per cent.

The amount of sediment in the second specimen is generally less than in the first, as is evident in gross examination. This sediment settles so rapidly that in most cases the supernatant fluid can be easily obtained. To determine whether or not it is necessary to filter or centrifuge specimens, a few experiments were made on specimens containing sediment, and were repeated when the sediment had been removed, and on the sediment itself suspended in water. It was found that while mercury is utilized in combining with the sediment of the saliva, this sediment (except when present in abnormal amounts), displaces approximately its equivalent in mercury combining power in the volume of saliva taken for estimation. Filtration, therefore, is not necessary, although the use of clear supernatant fluid is preferable to a specimen in which the sediment has not settled.

INFLUENCE OF ULTRAVIOLET IRRADIATION ON CALCIUM CONTENT OF BLOOD SERUM

IN HAY-FEVER, HYPERESTHETIC RHINITIS AND THE ASTHMAS: PRELIMINARY REPORT

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AND
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I. A STUDY OF THE CALCIUM CONTENT OF HUMAN BLOOD SERUM IN HAY-FEVER, HYPERESTHETIC RHINITIS AND THE ASTHMAS

In 1917, Halverson, Mohler and Bergeim[1] of Philadelphia presented data with regard to the calcium content of the blood in a variety of pathologic conditions. While a rather wide field had been covered, no mention was made of hay-fever, hyperesthetic rhinitis, (vasomotor rhinitis) or the asthmas. This was probably due to the fact that these diseases were accepted as belonging to an entirely different field, and no possible relationship was suggested between them and the calcium deficiency of the blood. A thorough review of the literature gives one no added information regarding these conditions. This study was therefore undertaken to determine what relationship existed, if any, between hay-fever and hyperesthetic rhinitis and an ionic calcium deficiency of the human blood serum.

Determination of Calcium in Blood Serum.—The problem of measuring the calcium content of blood serum was not a difficult one, as much work has been done along these lines. Halverson and Bergeim,[2] in 1917, showed how the calcium could be determined in small amounts of blood and in other biologic materials low in this element. According to these investigators, three main problems must be solved in this connection: "The first is the preparation of a solution containing all of the calcium but free from interfering organic matter. The second is the precipitation of the calcium in the presence of such other elements as commonly occur, while the third consists in the accurate estimation of the precipitated calcium."

While many methods are known, these authors suggested the precipitation of calcium as oxalate directly in the filtrate from biologic fluids after removal of protein, the final estimation being carried out by a refinement of the permanganate titration method. We have accepted this plan in our determinations. It apparently affords not only accurate computations, but also the simplest procedure for obtaining them, particularly when one considers the many complicated procedures mentioned in the literature.

More recently certain investigators have suggested other ways of determining calcium in small amounts of blood serum. Kramer and Tisdall[3] in 1921, published two reports, the more interesting of which from the standpoint of the clinician is the first one,[4] which speaks of a clinical method for quantitative determination of calcium not only in small amounts of serum, but also in plasma. As can readily be understood, these determinations may serve as a valuable help to the clinician. However, the computations cannot be relied on as being as accurate as those obtained by laboratory technic.

It has been argued that determinations on plasma would be preferable to those on serum on account of the changes in plasma values in many pathologic conditions. While this contention is no doubt correct, it has been found that changes in plasma values are closely reflected in serum values, even in uremia,[1] in which the calcium content of the blood is most markedly altered. This work was part of the study of Halverson, Mohler and Bergeim of Philadelphia, and has been accepted by most students of this problem. Blood serum has therefore been employed as a matter of convenience. In this connection, it is pointed out that calcium determinations on whole blood are of little value unless the relative volume of corpuscles and plasma is known. As this plan is not only more complicated, but unpractical, it has not been considered at all.

It must be remembered, further, that calcium is present in the blood in two forms, ionized and combined. When coagulation of the blood occurs, the calcium in the exuded serum is found to be all in the ionized form. What the normal amount present is, varies only slightly. Groves and Vines, British writers, accept the figure of 10.5 mg. of calcium per cent., while Halverson, Mohler and Bergeim accept 10.2 as the standard. The work of the latter is based on a study of the calcium content of human serum in a variety of conditions. For normal men, percentage values from 9.6 to 10.8 with an average of 10.2 were obtained. That these values are characteristic is supported by the finding of similar values in the great majority of pathologic cases not known to be associated with disturbances in calcium metabolism.

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[1] Halverson, J. O.; Mohler, H. K., and Bergeim, Olaf: The Calcium Content of the Blood Serum in Certain Pathologic Conditions, J. Biol. Chem. **32**: 171 (Nov.) 1917.

[2] Halverson, J. O., and Bergeim, Olaf: The Determination of Small Amounts of Calcium, Particularly in Blood, J. Biol. Chem. **32**: 159 (Nov.) 1917.

[3] Kramer, Benjamin, and Tisdall, F. F.: Determination of Calcium and Magnesium in Small Amounts of Serum: A Simple Technic, J. Biol. Chem. **47**: 475 (Aug.) 1921.

[4] Kramer, Benjamin, and Tisdall, F. F.: Clinical Method for Quantitative Determination of Calcium and Magnesium in Small Amounts of Serum or Plasma, Bull. Johns Hopkins Hosp. **32**: 44 (Feb.) 1921.

Leicher [5] recently reported on the decrease of blood calcium in otosclerosis. He says that in considering the possibility of successfully treating blood calcium deficit, a distinction must be made between patients in whom only the total calcium (or combined calcium) of the serum is decreased, and those with the positive signs of deficit in ionized calcium. The latter can be influenced by treatment easily, the former only with difficulty.

Ionic Calcium Content of Blood Serum in Hay-Fever, Hyperesthetic Rhinitis and Asthma.—The present report is not based on selected cases. It represents a series which one meets in office and clinical practice, and includes the complaints of the conditions commonly known as hyperesthetic rhinitis, or vasomotor rhinitis, hay-fever and certain types of bronchial asthma. In each instance, before any laboratory tests were made, the clinical diagnosis was confirmed. The attacks of hyperesthetic rhinitis are characterized by paroxysms of sneezing, which have been referred to as the machine gun sneeze. The patient sneezes from a half dozen to fifty times in one paroxysm. This is followed by a profuse, thin watery, serous, irritating discharge from the nose. The conjunctivae become more or less suffused and hyperemic.

On examination of the nose between attacks, it appears practically normal except for the pallor of the mucosa. During the attack and for a variable length of time afterward, the turbinates and the mucous membrane lining the septum are water-logged. The tissues are pale, soft and swollen. The thin, serous discharge gives them a shiny appearance.

The ionic calcium content of the blood serum was measured in each patient according to the method already described. The lowest figure obtained in hyperesthetic rhinitis is 6.76, and the highest, 9.8 mg. per cent. (Other figures are given in the accompanying table.)

While the calcium content of the serum is invariably low in hyperesthetic rhinitis, it is not always so in all cases of hay-fever and asthma. In the two latter diseases, many blood specimens yielded a normal calcium figure and some even gave results in excess of the standard. This group does not belong to the classification of cases included in the scope of this paper. It is more than likely that in instances in which the calcium is normal or very close to the standard, the etiology is some factor other than a calcium deficiency.

II. EFFECT OF CALCIUM, THYROID AND COMBINED CALCIUM-THYROID THERAPY IN HAY-FEVER, HYPERESTHETIC RHINITIS, AND ASTHMAS

The Empiric Use of Calcium in Asthma.—For some time past, clinicians have employed calcium, chiefly as calcium lactate, in the treatment of hay-fever, and more particularly, asthma. This remedy has been prescribed purely on an empiric basis. Recently, however, the possibility of an associated disturbance of calcium metabolism was thought of. And while very little consideration has been given to this phase in a specific way, several investigators have reported some comprehensive data from which one may conclude definitely that a dysfunction of metabolism exists.

The Basal Metabolism in Hyperesthetic Rhinitis.—Novak,[6] in 1921, measured the basal metabolism in hyperesthetic rhinitis in a series of cases. In a definite number of them he found that the metabolic index was low. These observations were not substantiated by the work of Simpson,[7] who reported that he found only an exceedingly small number of hyperesthetic cases with a low metabolic index.

Parathyroid Studies.—Groves and Vines contend that the parathyroids rather than the thyroid are at fault, and their report deals chiefly with the dysfunction of the former. In certain ulcerative conditions it was found that there occurred a deviation from the normal in the calcium content of the serum, some of the calcium being present in the combined form. This abnormality was present in all cases of varicose ulcer; and, in the belief that this might be concerned in maintaining the chronicity of the ulceration, measures were taken to increase the ionic calcium in the serum. Accordingly, calcium was administered by two routes, the intramuscular and the oral. The latter produced no effect at all; the former had a definite influence in promoting the commencement of healing in the ulcers. But the injections alone did not appear to have the power to cause complete healing. It was necessary to give, in addition, small doses of parathyroid substance by mouth. After this additional medication was instituted, complete healing resulted. Further observations demonstrated that the rate of healing was dependent on the rise in the ionic calcium of the blood serum. Groves and Vines concluded that "the toxic substance produced by various pathologic conditions in some way injures the parathyroid glands, and also combines with some of the ionized calcium of the blood. In this way the calcium balance of the blood became disturbed, and the parathyroids were not able to rectify it."

Action of Parathyroid Substance.—In continuing their discussion, the same writers choose to classify the conditions dealt with as "chronic states of a toxic or infective origin." They aim to explain the mode of action of parathyroid substance, "so that the appearance of a claim to its action as a universal panacea may be avoided."

All agree that the mode of action of parathyroid is essentially physiologic, "a more or less specific action on calcium metabolism combined with, or resulting in, a generalized stimulation of metabolism as a whole. It is an aid in the fight against infection of the chronic type, not by its specific action on the infecting organism, but because it places the tissue cells under the most favorable conditions for an adequate resistance."

In accord with these views is the work of Dragstedt,[8] at the University of Chicago, on tetany. He found that completely thyroparathyroidectomized dogs could be kept alive, at least for a year, by diets containing large amounts of lactose. Such a diet undoubtedly produces a complete suppression of bacterial proteolysis in the intestine and the resultant production of intestinal poisons. It was concluded that this tetany [9] is due to an intoxication, and that the responsible toxic substances come chiefly from the gastro-intestinal tract. They are supposed to arise through the activity of the proteolytic group of intestinal bacteria, and are probably for the most part cleavage products of the nature of amins. The function of the parathyroid glands is to prevent intoxication by these poisons.

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[5] Leicher, Hans: Further Report on the Decrease of Blood Calcium in Otosclerosis and the Possibility of Affecting It by Treatment, Ztschr. f. Hals, Nasen u. Ohrenh. **4**: 74 (Dec. 6) 1922.

[6] Novak, F. J., Jr.: Basal Metabolism in Hyperesthetic Rhinitis, Wisconsin M. J. **19**: 534 (March) 1921.

[7] Simpson, W. L.: Basal Metabolism in Hyperesthetic Rhinitis, Bronchial Asthma and in Cases in Which the Roentgen Ray or Radium Has Been Applied to the Tonsils, Laryngoscope **32**: 768 (Oct.) 1922.

[8] Dragstedt, L. R.: The Pathogenesis of Parathyroid Tetany, Am. J. Physiol. **63**: 408 (Feb.) 1923; The Pathogenesis of Parathyroid Tetany, J. A. M. A. **79**: 1593 (Nov. 4) 1922.

[9] Old Theories and New Facts Regarding the Tetany Due to Parathyroidectomy, Editorial, J. A. M. A. **80**: 774 (March 17) 1923.

Luckhardt,[10] a co-worker of Dragstedt, found that completely parathyroidectomized dogs can be kept alive, without showing tetany, on a diet very rich in meat, by means of the oral administration of calcium lactate. After a time this can be stopped entirely without the appearance of tetany. The spontaneous tetany occurring thereafter at irregular intervals, presumably because of constipation or the ingestion of large quantities of unspoiled or small quantities of putrid meat or other spoiled food, can be rapidly controlled by the ingestion of calcium lactate and by the giving of enemas.

Another interesting report comes from Salvesen,[11] of Christiania, who discovered in his experiments in the chemistry of parathyroid insufficiency, the drop in blood calcium, which is more marked the more parathyroid tissue is removed. Suggestion is made that the parathyroids control the calcium metabolism, and by doing so they influence the function not only of the muscle and nerve tissue, but probably of all organs.

Calcium Deficit in Serum in Hay-Fever, Hyperesthetic Rhinitis and Asthma.—With this somewhat differing expression of views in mind, we took up the treatment of hay-fever, hyperesthetic rhinitis and asthma, on the basis of an analogous ionic calcium deficit in the blood serum. After the calcium content of the blood serum was determined and found low, the patients were put on calcium lactate in variable doses of from 5 to 20 grains, from three to four times daily. Observation of these patients showed no definite improvement in the original symptoms. Later the same patients were placed on small doses of thyroid extract, one-fourth grain three times a day, and within four or five days, a complete change had taken place in more than three fourths of them.

While the one-fourth grain of thyroid extract was employed, no doubt similar results could be obtained with smaller doses, as in some instances, this dose was administered after a time only once a day, with a continuation of the general improvement.

It was not, however, until the calcium and thyroid were combined that the therapy showed its true value. Calcium lactate, 5 grains, thyroid extract, one-fourth grain, at first three times daily, and later reduced to twice and even once a day, gave immediate relief within from forty-eight to seventy-two hours. This relief occurred in all cases of hyperesthetic rhinitis and in some cases of hay-fever and asthma; but a sufficient opportunity has not been afforded thus far to try this combined therapy on a large enough number of patients with severe asthma and hay-fever. It should be added that while this therapy was being continued, no local or other form of treatment was being carried out.

The following cases are representative:

Case 1.—W. F., a woman, aged 23, single, had had hay-fever for the past thirteen years. Various forms of treatment and change of climate gave no relief. Recently she has had typical attacks of asthma in addition to the hay-fever symptoms. Calcium lactate, 10 grains, three times daily, over a period of time gave no relief; thyroid extract, one-half grain, twice daily, gave partial relief; calcium lactate, 10 grains, and thyroid extract, one-fourth grain, gave prompt and complete relief within forty-eight hours. This treatment was continued for eight days, and when discontinued, there was a slight recurrence of the old symptoms. After the combined calcium-thyroid therapy was instituted again, relief was once more obtained. When discontinued, the old symptoms again manifested themselves. The calcium was reduced to 5 grains and the thyroid to one-fourth grain and administered once daily, with complete relief of the symptoms.

Case 2.—S. E. L., a man, aged 45, married, had severe symptoms of hyperesthetic rhinitis for four years. The course of treatment was carried out as described in Case 1 with results precisely the same.

Case 3.—A. L. F., a man, aged 52, had hay-fever and asthma for fourteen years. He had previously taken calcium lactate in variable doses, at different times, with no relief. Thyroid extract, one-fourth grain, and calcium lactate, 5 grains, administered twice daily, and, after two weeks, once daily, gave complete relief, with a cessation of violent sneezing and freedom from characteristic asthmatic breathing. (The results obtained in the entire series of cases are given in the accompanying table.)

Calcium Determinations and Results Obtained in a Series of Cases of Hay-Fever, Hyperesthetic Rhinitis, and Asthma with Calcium, Thyroid, Combined Calcium-Thyroid Therapy, and the Ultraviolet Light

	Number of Cases	Lowest Calcium Finding	Highest Calcium Finding	Average for Total Cases	Number of Cases Influenced by Calcium	Number of Cases Influenced by Thyroid	Number of Cases Afforded Relief by Calcium and Thyroid	Cases Which Appear to be Influenced Permanently by Ultra Violet Light
Hyperesthetic rhinitis.......	39	6.76	9.8	8.1*	0	18	39	39
Hay-fever	23	8.18	11.2	10.3	0	6	16	16
Bronchial asthma......	12	8.70	10.5	9.4	0	3	6	6

* Standard, 10.5 mg. per hundred cubic centimeters of blood serum.

The serum calcium in each instance was observed during the treatment. Improvement commences when the amount of ionic calcium in the serum begins to approach the normal figure.

From these results with the single and combined therapy, it is evident that the thyroid extract (or parathyroid) plays an important part in (1) stimulating the calcium metabolism of the body, or in (2) activating the artificial calcium in addition thereto and fixing it so that it is not immediately excreted. It is probable that the former theory is correct, and yet when one observes that prompt relief was obtained in the majority of patients, only after the thyroid extract was combined with the calcium lactate, he is wont to lean somewhat to the latter possibility.

Why is the calcium therapy alone not effective? As noted by Groves and Vines, it is effective when administered alone, but only when given by intramuscular injection. And even in this way, "healing was only partial and temporary until parathyroid substance was added." The fact is that prolonged clinical testing with calcium has not been performed to any great extent. Most of the experimental work has been done in animals and only for a sufficient time to serve its purpose. The observations reported in this paper, based on clinical experimentation, are therefore more or less conclusive. Calcium lactate alone, when given orally, does not influence calcium deficiency. It is probably for this reason that clinicians are disappointed in the use of calcium alone in the so-called asthmatic tendencies.

On the other hand, reports show that thyroid (or parathyroid) is effective in most instances. This is not unusual, since we know the basal metabolism in some of these cases is decreased, and from this standpoint, if from no other, the glandular substance is indicated. Furthermore, the experience of most investigators along these lines is practically the same. The result is that thyroid extract in calcium deficiencies is an accepted form of therapy.

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[10] Luckhardt, A. B., and Goldberg, Benjamin: Preservation of the Life of Completely Parathyroidectomized Dogs, J. A. M. A. **80**:79 (Jan. 13) 1923. Luckhardt, A. B., and Rosenbloom, P. J.: The Prevention and Control of Parathyroid Tetany, Proc. Soc. Exper. Biol. & Med. **19**:129, 1921. Luckhardt and Blumenthal: Science **56**:257 (Sept.) 1922.

[11] Salvesen, H. A.: Studies on the Physiology of the Parathyroid, Proc. Soc. Exper. Biol. & Med. **20**:204 (Jan. 7) 1923.

While the combined calcium thyroid treatment has shown its merit, the question of the permanence of results had to be answered. Relief of symptoms was present in many cases while the treatment was in progress, and also during the time the dosage of the drugs was gradually reduced. It seems that the smallest dosage of one-eighth grain of thyroid extract combined with 5 or ten grains of calcium lactate, once daily, is sufficient to afford relief during its continuous administration. But within a very short time after the medication is discontinued, if any of the excitants are present, there is a prompt return of symptoms. It is this phase which led the authors to search still further for a means which would not only stimulate, but permanently fix, the increased ionic calcium in the blood serum.

III. INFLUENCE OF THE MERCURY VAPOR QUARTZ LAMP (ULTRAVIOLET RAY) IN FIXING THE CALCIUM CONTENT OF THE BLOOD SERUM

Treatment of Rickets by the Ultraviolet Ray.—Tisdall[12] recently reported the successful treatment of rickets by exposure to ultraviolet rays from a mercury vapor quartz lamp. While other investigators have reported similar results, according to Tisdall, none have reported any observations on the effect of ultraviolet rays on the calcium and phosphate content of the blood.

Tisdall's experiments included six cases. In all of these the ionic calcium content of the blood was proportionately low and well under the 10.5 mg. per cent. standard. In the majority of these cases a total three hours' exposure to the quartz lamp was necessary. The calcium was increased in each instance and the patients permanently cured. A similar experiment with an ordinary 500 watt incandescent lamp, even with a much longer exposure, proved unsuccessful in increasing the calcium content. These changes were not influenced by diet, as the diets during treatment remained the same as before.

In foreign literature, one reads of the reports of Brasch and Bach, the latter of whom successfully treated rhinitis, and especially hay-fever. No explanation is made, however, in describing their work.

Interesting also is the work of Hess,[13] who attempted to cure a number of rachitic infants by means of rays from the mercury vapor lamp. This author believes that although his results were inconclusive, owing to the lack of roentgenograms, subsequent work by Huldschinsky, who also used this source of radiation, gave evidence of definite healing by means of roentgenograms.

Hess' experiments on rats showed that rickets-producing diets will fail to develop rickets if the rats are exposed to the sun. He found further that artificial light produces the same result, particularly the mercury vapor quartz lamp. "Daily irradiation at a distance of three feet for three minutes is sufficient to protect white rats fed on the standard diet."

The Influence of Ultraviolet Light on Calcium Metabolism.—"There is evidence of metabolic change in the animal body brought about by solar rays in the fact that the inorganic phosphate was brought up to normal by sunlight and also carbon-arc irradiation. A similar effect was had with calcium in the blood. The ultraviolet light seems to be necessary for the normal metabolism of the infant."

Another series of experiments conducted by Kramer, Casparis and Howland[14] conclusively demonstrated that rachitic infants treated by systematic exposure to the rays from the mercury vapor quartz lamp showed healing in every instance, and showed the necessary calcium deposits in the bones.

The investigations of Huldschinsky[15] are even more convincing. His results have far exceeded his expectations, proving that this form of therapy can be considered as a specific method for the treatment of rickets, insuring arrest of the pathologic conditions within a short time.

With this work as a basis for study, we were of the opinion that if the calcium metabolism in rachitis could be so markedly influenced by ultraviolet irradiation, the same good results could be obtained in hay-fever, hyperesthetic rhinitis and the asthmatic tendencies when the calcium content of the blood was lower than normal. Accordingly, those patients who had had a recurrence of symptoms when the calcium and thyroid had been discontinued were exposed to the rays of the mercury vapor quartz lamp.

Method of Use.—The lamp is raised about 1 meter from the patient and fractional body exposures are made, two or three times weekly or oftener. The time of exposure, at first two minutes, is increased at each treatment by from two to three minutes, depending on the tolerance of the individual. At each successive treatment, the distance between patient and lamp is decreased by 3 inches. The smallest distance reached is about 18 inches, while the longest exposure made may reach fifteen minutes, or in exceptional cases, when the tolerance of the individual is great, twenty minutes.

The Ultraviolet Spectrum.—The air cooled lamp used is of the Victor type. The mechanism whereby ultraviolet radiation from this lamp increases the calcium of the blood is not at all understood. The lack of understanding, however, in no way interferes with the clinical usage of the energy for the definite production of the necessary increase. According to Pacini,[16] "the region of the ultraviolet spectrum involved in occasioning the increase is readily fixed; for, as Hess and others have shown, only the ultraviolet fraction of sunlight that remains unfiltered by glass is apparently useful. Sunlight ultraviolet ends at the region of 2,900 Angström units; glass filters at 3,022 Angström units. So that the small region of sunlight ultraviolet included between the limits of 3,022 and 2,900 Angström units is clinically effective in influencing calcium metabolism."

It should be noted that the lamp irradiation is used in conjunction with the drug treatment, for it is with this combined therapy that the most favorable results are obtained.

CONCLUSIONS

1. The ionic calcium content of the blood serum is invariably low in hyperesthetic rhinitis.
2. There are also certain cases of hay-fever and asthma which show a low calcium content.
3. Calcium alone does not influence these conditions.

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[12] Tisdall, F. F.: *The Effects of Ultraviolet Ray on the Calcium and Inorganic Phosphate Content of the Blood Serum of Rachitic Infants*, Canadian M. A. J. **12**: 536 (Aug.) 1922.

[13] Hess, A. F.: *Influence of Light in Prevention and Cure of Rickets*, Lancet **2**: 367 (Aug. 19) 1922.

[14] Kramer, Benjamin; Casparis, H. R., and Howland, John: Ultraviolet Radiation in Rickets: Effect on Calcium and Inorganic Phosphorus Concentration of Serum, Am. J. Dis. Child. **24**: 20 (July) 1922.

[15] Huldschinsky, K.: Die Behandlung der Rachitis durch Ultraviolettbestrahlung, Ztschr. f. orthop. Chir. **39**: 426, 1919-1920.

[16] Pacini, A. J.: Ultra Violet Radiation in the Treatment of Fractures, Am. Med. **17**: 701 (Dec.) 1922.

4. Calcium lactate combined with thyroid extract affords temporary relief in all cases of hyperesthetic rhinitis and in some cases of hay-fever and bronchial asthma.

5. Exposure to the mercury vapor quartz light, together with the combined calcium-thyroid therapy, appears to fix permanently the ionic calcium content of the blood serum.

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ACIDIFIED WHOLE MILK AS A ROUTINE INFANT FOOD*

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Some young infants may be satisfactorily fed on whole undiluted cow's milk given in the same amounts as human breast milk. The majority, however, when so fed fail to thrive in a normal manner and develop gastro-intestinal and nutritional disturbances. This fact has led to the common practice of feeding infants lesser amounts of cow's milk than of breast milk, and making up the deficiency in calories by the addition of some form of carbohydrate. The total volume of the food is made up by the addition of water. In other words, the milk is diluted and sugar is added.

Various theoretical explanations for the necessity of such modifications of cow's milk have been given. It has been assumed, for example, that the infant is incapable of digesting protein when it occurs in a concentration of 3.5 per cent., as in cow's milk, but can digest it when its concentration amounts to only 1.25 per cent., as it occurs in breast milk and diluted cow's milk. Such an assumption is unsupported by experimental evidence. The fact remains, however, that the infant cannot ordinarily digest as great a total amount of cow's milk as of breast milk, and most systems of modification, in their ultimate analysis, merely accomplish a reduction in the total amount of milk fed and supply the necessary calories in other ways. This is true of the usual whole milk dilutions, "percentage formulas," condensed milk dilutions, Gerstenberger's "S. M. A.," Czerny-Kleinschmidt's "Buttermehlernährung," malted milk, etc.

The methods described have distinct limitations, especially in the case of infants having lowered digestive capacity, as the margin is a narrow one between the infant's ability to utilize cow's milk and the amount of milk required for satisfactory nutrition. Not infrequently the amount of milk needed is more than the amount that may be effectively cared for by the gastro-intestinal tract.

Cow's milk can be rendered more digestible by the addition of acid, and can then be given in considerably larger amounts. In another paper[1] we have pointed out some of the reasons for this fact. We have shown that sweet cow's milk is capable of neutralizing, to a great extent, the acid of the gastric juice, and in this way impairing seriously normal digestive function. Acid milk, on the other hand, does not neutralize the gastric juice, and in this respect behaves more like breast milk. Acid milk, furthermore, is usually free from pathogenic bacteria on account of the inhibiting effect of the acid on bacterial growth. The fineness of the curd has also been assumed to be an added advantage. Other theoretical explanations as to the favorable effect of acid milk have been advanced, such as denaturization of the protein;[1] stimulation of the flow of bile, pancreatic and intestinal secretions;[1] favorable effect on absorption of fat, protein and mineral matter,[2] and stimulation of the muscular construction in the gastro-intestinal tract.[3] It has also been asserted that the live lactic acid organisms present in bacterially soured milk exert a favorable action on gastro-intestinal processes. The somewhat lowered sugar content of the bacterially soured milk has also been believed to be a factor in rendering it more digestible by infants. The latter two considerations are not applicable to milk artificially soured by the addition of acid.

Whatever the explanation accepted, the favorable effects of acid milk cannot be disputed. It has long been known[4] that buttermilk is better tolerated by infants than sweet milk. This fact was empirically discovered. Buttermilk, whether alone or in combination with curds, as in protein milk, is now used as a routine by pediatricians in the treatment of intestinal disturbances of infants, with excellent results.

Some years ago, one of us[5] pointed out the value of whole lactic acid milk as a food for athreptic infants. It was shown that even young or undernourished infants could, to advantage, be fed undiluted bacterially soured whole cow's milk, enriched with considerable amounts of commercial corn syrup. The tolerance for such food was found to be very high. The reasons for this were discussed in the paper mentioned.

Such formulas were used at first only for the feeding of certain athreptic infants who failed to do well on the usual types of food. The use has gradually been extended to other infants as the advantages of this type of food became evident until, at present, approximately 90 per cent. of the infants in the St. Louis Children's Hospital are fed on lactic acid milk and corn syrup formulas. The method of preparation of the whole lactic acid milk has been improved and simplified to such an extent that it can readily be prepared in the home. This has made it possible to use the milk in dispensary and private practice. During the last two years, more than 50 per cent. of the infants attending the feeding clinics of the Washington University Dispensary have been fed on the acid milk formulas, and the results have been such that we feel that a still more general use of this type of food would be advantageous in the feeding of normal as well as of sick infants.

PREPARATION OF FORMULAS

Whole cow's milk, artificially soured by inoculation with lactic acid producing organisms, can be obtained from dairies in most large cities. Such milk is sold under various names ("Bulgarian Milk," "Fermilac," "Lactase"). The product of the better dairies is usually satisfactory for use in the feeding of infants. The cost of whole lactic acid milk, as obtained from the dairies, is usually about 5 cents a quart more than the usual pasteurized milk.

When lactic acid milk is not obtainable from dairies, it must be prepared at home. Two methods are available, the souring with lactic acid organisms, or the addition of lactic acid to sterilized milk.

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[1] Marriott, W. M., and Davidson, L. T.: Acidity of the Gastric Contents of Infants, Am. J. Dis. Child. **26**: 542 (Dec.) 1923.

[2] Klotz, M.: Milchsaüre und Säuglingsstoffwechsel, Jahrb. f. Kinderh. **70**: 1, 1909-1910.

[3] Sherman, D. H., and Lohnes, H. R.: Lactic Acid Milk, Tr. Am. Pediat. Soc. **32**: 245, 1920.

[4] Teixeira de Mattos: Jahrb. f. Kinderh. **55**, 1902.

[5] Marriott, W. M.: Artificial Feeding of Athreptic Infants, J. A. M. A. **73**: 1173 (Oct. 18) 1919.

The method of preparing milk in the home by the use of lactic acid cultures was described in the preceding paper[5] and will not be detailed here. The method is not free from difficulties, and a uniform preparation is not regularly obtainable. Furthermore, contaminations of the cultures not infrequently occur.

A better method consists in the addition of lactic acid to sterilized milk. This method can easily be carried out, even by unintelligent mothers, and is, in fact, distinctly more "fool-proof" than the method of preparation of the usual sweet milk formulas.

To prepare acid milk, a good grade of cow's milk is first sterilized by boiling for five minutes. The milk is then cooled and the scum removed. When thoroughly cool, lactic acid is dropped in slowly, while the milk is gently stirred. Lactic acid, U. S. P. (75 to 85 per cent.), is used and the amount required is 1 dram (4 c.c.) to each pint (500 c.c.) of milk. This is added a drop at a time from a medicine dropper. A test tube drawn out to a fine point and graduated in drams or cubic centimeters also provides a satisfactory means of slowly adding a measured amount of acid. If the milk is warm when the acid is added, or if the acid is run in too rapidly, large clumps of curds will separate. When properly prepared, a smooth, homogeneous preparation should result. The concentration of acid is the same as that occurring in ordinary buttermilk. The taste and general physical properties are the same. The cost of lactic acid used in the preparation of a quart of milk is not more than 2 cents, at the present market price of U. S. P. lactic acid (approximately $1 a pound).

The milk prepared as described keeps well, even if not placed in a refrigerator. Its acidity is such (p_{H} 4) that bacterial growth is almost completely inhibited. We have inoculated such milk with pure cultures of *B. coli* and *B. dysenteriae* and have found no growth at the end of twenty-four hours. Ohta[6] has shown that, when milk of this degree of acidity is contaminated by the addition of mixed stool bacteria of infants, no growth of the organisms occurs.

In using lactic acid milk for infant feeding, dilution is not usually necessary, as the amount an infant would ordinarily take at a feeding is not in excess of the digestive capacity. Only when it is desired to limit distinctly the amount of milk taken, without at the same time decreasing the total fluid intake, as, for example, during warm weather, or in the case of infants convalescing from severe diarrhea, is dilution required. Practical experience has shown that it is neither necessary nor desirable to dilute the milk for the feeding of even newly born or premature infants.

Carbohydrate should be added to lactic acid milk, as the amount of sugar present is insufficient for the needs of the average infant. The carbohydrate of choice is commercial corn syrup, such as is obtainable in grocery stores (Karo, etc.). This syrup contains a relatively high proportion of the difficultly fermentable dextrin,[7] and can consequently be added to the lactic acid milk feedings in large amounts without the danger of producing diarrhea. The characteristics of corn syrup are discussed elsewhere.[5] This form of sugar possesses distinct advantages over sucrose or lactose, and is at least as suitable for infant feeding as the expensive proprietary malt preparations. The amount of syrup usually added to the day's feedings is 1 ounce for infants up to 2 weeks of age, and from 1½ to 2 ounces for the older infants. It is occasionally of advantage to add somewhat larger amounts in the case of infants with high caloric requirements, especially those who are undernourished. Some infants are able to take a surprising amount of the syrup without developing any diarrhea. As cereal starches are added to the diet after the age of 6 months, the amount of syrup may be decreased.

In preparing the formulas, the syrup is stirred into the lactic acid milk until thoroughly mixed. In cold weather the syrup may first be diluted with an equal volume of warm water, to facilitate mixing with the milk. The entire day's feedings are made up at one time, and preferably kept cool until used. No further sterilization is necessary. Feedings are given at four-hour intervals, six feedings a day for very young or undernourished infants, five feedings otherwise. The amount at a feeding is determined by the appetite and symptoms presented by the baby. In general, about the same amounts are taken as is customary for other regularly used formulas; that is to say, the average infant will take feedings of about 2 ounces at 1 week of age, 3 or 4 ounces at a month, 6 ounces at 4 months, and 7 or 8 ounces from the sixth month on.

It is thus seen that the infant receives a formula of approximately the same composition throughout the whole first year. There is a relatively higher proportion of sugar in the mixture for the younger than for the older infants, but the difference is not great. Indeed, we have found that a single formula may be used very satisfactorily throughout the first year. Such a formula for general use is prepared by mixing corn syrup and lactic acid milk in the proportion of 1 ounce to the pint. The infant is given about as much as he desires every four hours.

Such a procedure is, at first sight, at variance with what have been considered, by some, to be the underlying principles of scientific infant feeding. The real reason, however, for modifying milk so as to provide different formulas for different ages is the incapacity of the young infant to digest sweet cow's milk. As the infant becomes older, the digestive tract accommodates itself to cow's milk, and a larger proportion of the food intake can be given in that form. With cow's milk rendered readily digestible by addition of acid, the need for such modification largely disappears. It is well to take cognizance of the fact that the normal infant receiving his natural diet from the mother's breast gets the same formula each month and takes about all he desires.

It is, of course, at times advisable to alter the formulas to meet definite indications. This is very simply accomplished. Skimmed milk may be substituted for all or a portion of the whole milk. The amount of added syrup may be decreased. We would, however, warn against too frequent meddling with the formula, and especially against prolonged underfeeding. The great advantage of the type of food described is that it is a concentrated one and provides a means of giving the infant, in a reasonable number of ounces, sufficient calories and a sufficient amount of each of the food constituents. Dilution of the formulas defeats the object aimed at.

It is to be noted that the formulas are not of the "get fat quick" type containing a disproportionately large amount of carbohydrate. The other food elements, fat, protein and salts, are also present in considerable concentration. The gains in weight are not due to the building up of flabby, waterlogged tissues, as is the case in condensed milk feeding. The lack of resistance to infection and the sudden nutritional catastrophes seen in the case of infants fed for a prolonged period on foods of the condensed milk type are not observed in infants fed on the lactic acid milk formulas, even when these formulas are fed continuously over many months.

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[6] Ohta, K.: Jahrb. f. Kinderh. **85**: 358, 1917.

[7] The average composition of corn syrup is: dextrin, 55 per cent.; maltose, 30 per cent.; glucose, 15 per cent. It is prepared by the acid hydrolysis of starch. One ounce by volume (two tablespoonfuls) is equivalent to 1 ounce of sugar. The caloric value is 120 an ounce.

RESULTS OBTAINED

Aside from any theoretical considerations involved, the only real test of the value of any method of infant feeding is the behavior of the infant receiving the food. During the last two years, approximately 90 per cent. of the infants in the wards of the St. Louis Children's Hospital have been fed on undiluted whole lactic acid milk to which corn syrup has been added. The infants admitted to the hospital have, with very few exceptions, been what would ordinarily be classed as difficult feeding cases, or else have been those suffering from definite disease. It has been the policy of the institution to admit only those infants that could not be treated satisfactorily in the home or in the outpatient clinic.

The records of all infants under 1 year of age in the hospital during the last two years have been analyzed in order to ascertain the results of lactic acid milk feeding. As temporary gains in weight are common on any food, all infants fed on the formulas for less than one week were eliminated from the series analyzed. Furthermore, fictitious gains in weight due obviously to saline injection were not recorded. Infants suffering from proved tuberculous meningitis and septicemia were not included in the series. This left 142 infants for consideration.

Of the 142 infants whose records were analyzed, seventy-eight, or 55 per cent., were suffering from infections during the period of observation. These infections included otitis media, fifty-three; pneumonia, twenty; pyelitis, thirty-eight; meningitis, three; pulmonary tuberculosis, two; bacillary dysentery, ten, and osteomyelitis, two. Included in the series were also cases of congenital syphilis, pyloric stenosis, congenital malformation of the heart, and spina bifida; in short, the usual run of cases seen in the infant ward of any large hospital. A large proportion of the infants were much underweight.

The ages of the infants varied from 2 days to 1 year. Six premature infants were included in the series. More than half of the infants were under 3 months of age. The number of days the infants were on the formulas varied from seven to 120. The average was twenty-two days.

The average number of calories fed was 153 per kilogram of body weight (70 calories a pound). Seventeen of the infants received more than 200 calories per kilogram of body weight (90 calories a pound).

For the entire group, the average daily gain in weight was 28 gm. ($^9/_{10}$ ounce).

This satisfactory nutritional result in a group of sick infants under hospital conditions has served to confirm our original impression of the value of the food of the type described.

Gain in weight is not the sole criterion of the suitability of the diet. The infants in the series rarely developed diarrhea or vomiting. None died as the result of gastro-intestinal disturbances attributable to overfeeding. Most striking of all has been the fact that the mortality among athreptic infants in the hospital has fallen from 78 per cent. in 1919 to 26 per cent. during the past year.

In the Washington University Dispensary, more than half of the infants coming under observation during the last two years have been fed on the lactic acid milk and corn syrup mixtures, and the results in these infants have been appreciably better than in any other artificially fed group. The method has also been extensively used in a number of the municipal feeding clinics in the city of St. Louis and in the private practice of a rather large group of pediatricians. Certainly, more than 1,000 infants in St. Louis have been fed on the formulas described, and the results have been so generally satisfactory that a still wider use of the method is to be recommended.

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THE TRANSMISSION OF ARSENIC FROM MOTHER TO FETUS *

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The earliest record found on the antenatal treatment of congenital syphilis was that of Bertin [1] in 1810. Lancercaux,[1] in 1868, admitted that, in his opinion, antenatal treatment was the correct method of procedure; but there still existed, at that time, a well recognized school which taught that it was both wrong and dangerous. The treatment at that time consisted in the administration of mercury in some form plus the free use of potassium iodid. This method of treatment had only a slight degree of success. Since the introduction of arsphenamin, the antenatal treatment of congenital syphilis with arsenic and mercury has had a surprising degree of success. Greenlees [2] and Findlay [3] report complete success in their series of cases, which, although few in number (fifteen), contained some that have been followed for a period of seven years. Fordyce and Rosen [4] have obtained excellent results after adequate antenatal treatment. In their series, the newborn were and remained both clinically and serologically free from syphilis. Adams [5] reports very satisfactory results in a large series of cases.

Williams [6] shows that almost ideal results follow the efficient treatment of syphilitic pregnant women. Furthermore, surprising results may sometimes follow what would ordinarily be regarded as altogether inefficient treatment in men or nonpregnant women. This would seem to indicate that pregnant women are unusually amenable to treatment. Such a general uniformity of successful results can be attributed only to the effectiveness of the antenatal treatment. The increasing efficiency in the methods of treatment, and the more thorough routine investigation of prospective mothers, make one feel more optimistic for a future reduction in the number of abortions, stillbirths and active cases of congenital syphilis. Some mothers

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* The data are taken from the thesis of Frank G. Amatruda, M.D., presented in partial fulfilment of the requirements for the degree of M.D., Yale University, 1923.

1. Quoted by Greenlees (Footnote 2).
2. Greenlees, J. K. C.: Glasgow M. J. **96**: 270 (Nov.) 1921.
3. Findlay, L.: Brit. M. J. **2**: 887 (Nov. 26) 1921.
4. Fordyce, J. A., and Rosen, Isadore: Treatment of Antenatal and Congenital Syphilis, Arch. Dermat. & Syph. **5**: 1 (Jan.) 1922.
5. Adams, J.: Brit. M. J. **1**: 56 (Jan. 14) 1922.
6. Williams, J. W.: Bull. Johns Hopkins Hosp. **33**: 383 (Nov.) 1922.

receiving antenatal treatment continued to have a four plus Wassermann reaction post partum, although their new-born infants were and remained clinically and serologically free from syphilis. Can this be explained on the basis of some protective function of the placenta, or some vitalistic property of that organ in keeping the drug in greater concentration in the fetal circulation? Is it a greater and more direct action of the arsphenamin on the spirochetes in the placenta, because of the greater vascularity of this organ? Or must we say, because of our ignorance on the subject, that it is due to some unknown immunologic reaction? It is with these points of view in mind that this investigation was undertaken, with the hope that it might throw some light on the explanation of this more specific action of antenatal treatment of syphilis on the fetal tissues.

HISTORICAL

Fundamentally, two antagonistic theories have been developed to explain the phenomenon of placental transmission. One, the vitalistic, assumes that the chorionic epithelium takes a specific vital part in placental interchange. The other, the mechanistic, regards this wall as a passive, semipermeable membrane, conforming to the laws of osmosis and diffusion. The vitalistic view gained many adherents after several investigators demonstrated the presence of enzymes in the placenta. These lipolytic, diastatic and proteolytic enzymes were never shown to be active agents in causing placental interchange. In fact, Slemons [7] suggested that these enzymes probably have to do merely with the living processes of the cells in which they are found. Edelstein and Ylppö [8] state that placental transmission cannot be explained merely by the laws of diffusion and osmosis, since they find a greater concentration of the sodium and potassium salts in the fetal than in the maternal blood.

In behalf of the mechanistic theory an enormous amount of experimental work and literature has accumulated, and the consensus of opinion now favors this theory. The growth of the fetus offers conclusive evidence that the interchange of oxygen and nutritious material from mother to fetus, and of waste products in the opposite direction does occur. Several investigators have shown experimentally that oxygen and carbon dioxid are transmitted readily through the placenta, moving from the point of higher to that of lower concentration. Zweifel [9] and Nicloux [10] made similar observations on the transmission of chloroform and ether, respectively. The transmission of substances in solution was first demonstrated by Mayer [9] in 1817, who observed the toxic effects of potassium cyanid in the mother after injecting the salt into the fetus. Gusserow,[11] in 1878, concluded that substances were transmitted from mother to fetus. He established the fundamental fact that, provided the placenta is normal, no insoluble substance may pass it. The researches of many men have demonstrated the transmission of several other substances, as strychnin, potassium cyanid, methylene blue, nicotin, curare, potassium iodid, physostigmin, phlorizin, pilocarpin, sodium salicylate and epinephrin. Nicloux summarized the literature up to 1909 and divided substances into two groups: (1) those soluble in water and diffusible, which traverse the placenta and (2) those insoluble in water and not diffusible, which do not traverse the placenta. Wislocki,[12] experimenting with a crystalloid (phenolsulphonephthalein) and a colloid (trypan blue), also comes to similar conclusions.

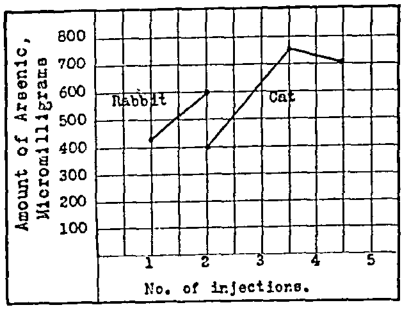

Chart 1.—Accumulation of arsenic in placenta.

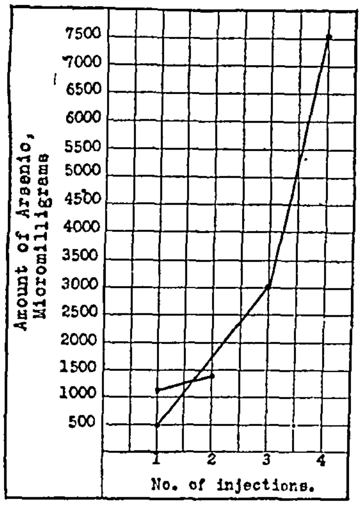

Chart 2.—Accumulation of arsenic in maternal liver after serial injections.

The normal constituents of human blood have also been examined quantitatively in the mother and the fetus at the time of delivery, and the results mostly conform to the mechanistic view. Thus, Kingsbury and Sedgwick [13] obtained the same average for uric acid. Plass [14] found that creatinin exists in the same concentration in both maternal and fetal blood. Slemons and Morriss [15] have shown that the urea and nonprotein nitrogen content is the same. Morriss [16] found the sugar content to be slightly lower in the fetal blood at the time of delivery. This he explains by the fact that the sugar content in the maternal circulation is raised during the second stage of labor. On the other hand, Morse [17] finds a constantly higher concentration of the amino-acid content of the fetal blood over that of the mother's. An excess of amino-acids amounting to about 2 mg. of nitrogen appears uniformly in favor of the fetal plasma.

Krönig and Führ [9] attempted to prove the mechanistic theory on the principles of physical chemistry. They investigated the freezing point of maternal and fetal blood, and found that the two freeze at the same temperature. This indicates that they have the same osmotic pressure; hence interchange may occur equally well in either direction.

The work of Bourquin [18] and others has shown that many toxins, antitoxins, agglutinins and hemolysins are readily transmitted through the placenta and tend to come to the same concentration. Recently, Givens and Howe,[19] working on the nutrient amino-acids and glucose, and catabolites urea and uric acid, conclude that the process of simple diffusion offers the most reasonable explanation for placental transmission. Quite different are the results of Slemons and Stander [20] on the content of the nondiffusible fats and colloids. The mother's blood contains much more of these substances than does the fetal. Regarding the transmission of formed substances, the work of Bonnet,[9] Hofbauer, Wallgren, Ascoli and others clearly shows that substances such as iron, fat and albuminous substances are eventually passed into the fetal circulation after first undergoing radical changes in the syncytium (Williams).

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[7] Slemons, J. M.: Tr. Am. Gynec. Soc. **44**: 113-115, 1919.

[8] Edelstein, F., and Ylppö, A.: Ztschr. f. Kinderh. **27**: 79 (Nov. 3) 1920; abstr., J. A. M. A. **76**: 347 (Jan. 29) 1921.

[9] Quoted by Williams: Obstetrics.

[10] Nicloux: Arch. mem. d'ob. et de gynéc. **2**: 840, 1909.

[11] Gusserow: Arch. f. Gynäk. **13**: 56, 1878.

[12] Wislocki, G. B.: Bull. Johns Hopkins Hosp. **32**: 93 (March) 1921.

[13] Kingsbury, F. B., and Sedgwick, J. P.: J. Biol. Chem. **31**: 261 (July) 1917.

[14] Plass, E. D.: Bull. Johns Hopkins Hosp. **28**: 297 (Sept.) 1917.

[15] Slemons, J. M., and Morriss, W. H.: Bull. Johns Hopkins Hosp. **27**: 343 (Dec.) 1916.

[16] Morriss, W. H.: Bull. Johns Hopkins Hosp. **28**: 140 (April) 1917.

[17] Morse, A.: Bull. Johns Hopkins Hosp. **28**: 199 (June) 1917.

[18] Bourquin, H.: Am. J. Physiol. **59**: 122-143 (Feb.) 1922.

[19] Givens, W. H., and Howe, M. G.: Chemical Studies of Blood of Mother and Fetus, Am. J. Dis. Child. **25**: 63-75 (Jan.) 1923.

[20] Slemons, J. M., and Stander, H. J.: Bull. Johns Hopkins Hosp. **34**: 7-10 (Jan.) 1923.

"Finally, the question as to whether the placenta acts as an efficient filter against bacteria has given rise to a great deal of discussion, but at present the consensus of opinion regards such an occurrence as unusual and associated with some lesion of the organ."

TABLE 1.—*Findings in Experiment 1*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Animal Killed	No. of Hours After Last Injection, Hours	No. of Embryos Found at Necropsy	Total Weight Embryos, Gm.
Oct. 18 (3 p. m.)	0.15	Oct. 19 (10 a. m.)	19	8	160

TISSUES EXAMINED FOR ARSENIC

Tissue	Weight, Gm.	Amount of Tissue Examined, Gm.	Amount of Arsenic Recovered in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver............	80	20	300	1,200
Maternal kidney..........	20	20	160	160
Placenta..................	60	20	140	420
1 whole embryo...........	20	20	None	0
7 fetal livers.............	15	15	None	0

Rabbit: weight, 3,600 gm.; one injection given

TABLE 2.—*Findings in Experiment 2*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Comment
April 13	0.15	Animal had already given birth to 4 embryos when seen the following day

TISSUES EXAMINED

Tissue	Weight, Gm.	Amount of Arsenic Found	Comment
Two whole embryos	75	Very slight trace	No other tissue examined

Rabbit: weight, 2,300 gm.

EXPERIMENTAL

As stated, this communication deals with the transmission of arsenic from mother to fetus. Rabbits and cats were injected with neo-arsphenamin, intravenously. The rabbits were injected into the ear vein without an anesthetic. The cats had to be anesthetized with ether before each injection, as these animals were uncontrollable otherwise. They were injected into the superficial femoral vein after the latter had been exposed by a small nick in the skin. After the desired number of injections had been given, the animals were killed. The time interval between injections was always about twenty-four hours, and the animals were killed about the same number of hours after the last injection.

The tissues to be examined for arsenic were oxidized by Gautier's method as simplified by Johnson and Chittenden.[21] The method for examining quantitatively the arsenic in the tissues was that of Gutzeit as modified by Sanger and Black.[22]

The maternal, fetal and placental tissues were examined for the presence of arsenic after the animals had received a varying number of injections. The results of the examinations are tabulated. A few points are interesting and worth mentioning. It will be noticed that in practically every case, traces of arsenic were detected in the fetal tissues. The amount of arsenic obtained from the fetal tissues was never more than a trace, regardless of the number of serial injections received by the animal. On the other hand, examination of the maternal liver and placenta shows that the amount of arsenic recovered from them increases with the number of serial injections the animal had received. From the results obtained there is little doubt that arsenic is stored up in the placenta and maternal liver after serial injections, as contrasted with the fetal tissues.

TABLE 3.—*Findings in Experiment 3*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	No. of Hours After Last Injection	Comment
1st dose, Jan. 22 (11 a. m.)	0.15	..	Jan. 24, 3 p.m.	..	8 embryos found at necropsy; total wt., 225 gm.
2d dose, Jan. 23 (5 p. m.)	0.15	30	....	22	

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver............	100	25	350	1,400
Maternal kidney..........	22	22	350	350
Placenta..................	60	25	250	600
1 whole embryo...........	30	30	Trace	Trace
7 fetal livers.............	20	20	Faint trace	Faint trace

Rabbit: weight, 3,800 gm.; two injections given.

TABLE 4.—*Findings in Experiment 4*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Comment
1st dose, April 13 (5 p.m.)	0.15	..	Animal had given birth to 5 embryos when seen the following morning, April 17
2d dose, April 14 (4 p.m.)	0.15	23	
3d dose, April 15 (4:30 p.m.)	0.15	24½	
4th dose, April 16 (5 p.m.)	0.15	24½	

TISSUES EXAMINED

Tissue	Wt., Gm.	Amount of Arsenic Found	Remarks
1 whole embryo	30	Slight trace	No other tissues examined

Rabbit: weight, 3,000 gm.; four injections given.

TABLE 5.—*Findings in Experiment 5*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	No. of Hours After Last Injection	Comment
1st dose, March 8 (4 p. m.)	0.15	..	March 10, 1923, 7 p. m	..	4 embryos found at necropsy; total weight, 226 gm.
2d dose March 9 (4 p. m.)	0.15	20	....	27	

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver............	60	20	175	525
Placenta..................	50	20	240	400
4 fetal livers.............	30	30	Slight trace	Slight trace

Cat: weight, 2,600 gm.; two injections given.

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[21] Johnson and Chittenden: Quantitative Chemical Analysis, Fresenius and Cohn 2:693.

[22] Sanger and Black: Proc. Am. Acad. Arts & Sc. 43:8, 1907.

COMMENT

This communication presents several interesting points for speculation. It is obvious from the data presented that arsenic is transmitted through the placenta in small quantities, after the intravenous injection of neo-arsphenamin. Whether the drug exists in the same concentration in the maternal and fetal circulations cannot be answered, as the maternal and fetal blood were not examined separately. It is appropriate to mention here that Raiziss,[23] working on the colloidal properties of arsphenamin and its allied products, observed that these drugs were less diffusible through a semipermeable membrane than sodium chlorid. Arsphenamin was twenty-five times less diffusible, and neo-arsphenamin, the drug used in these experiments, was slightly more diffusible than arsphenamin. Since colloids are not transmitted through the placenta, one would expect to find the arsenic in greater concentration in the maternal than in the fetal circulation if the neo-arsphenamin retains its partial colloidal property after intravenous injection.

Table 6.—*Findings in Experiment 6*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections Hours	Comment
1st dose, March 22 (4 p. m.)	0.15	..	Animal died, March 24, 3 p. m., 22½ hours after last injection;
2d dose, March 23 (4:30 p. m.)	0.15	24½	3 embryos found at necropsy; total weight, 330 gm.

TISSUES EXAMINED

Tissue	Weight of Tissue Examined, Gm.	Amount of Arsenic Found	Comment
1 whole embryo	100	Faint trace	No other tissue examined
2 fetal livers....	11	None	

Cat: weight, 3,500 gm.; two injections given.

Table 7.—*Findings in Experiment 7*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	*Animal Killed*	*Comment*
1st dose, March 12 (5:30 p. m.)	0.15	..	Cat found dead morning after last injection, March 15	6 embryos found at necropsy; total weight, 400 gm.
2d dose, March 13 (5:30 p. m.)	0.15	24		
3d dose, March 14 (4 p. m.)	0.15	24½		

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver............	120	30	750	3,000
Placenta..................	90	30	250	750
1 whole embryo...........	65	65	Trace	Trace
5 fetal livers..............	30	30	Slight trace	Slight trace

Cat: weight, 3,500 gm.; three injections given.

The fact that arsenic is not stored in the fetal tissues is of considerable clinical importance. The drug can be safely administered in the antenatal treatment of syphilis, in the ordinary doses given to men and nonpregnant women, without any danger of its having a toxic effect on the fetus.

The best scientific explanation that can be offered to explain the greater efficiency of the antenatal treatment of syphilis, especially in the new-born, is based on two important facts: 1. The arsenic can act in greater concentration on the spirochetes in the placenta, where the spirocheticide is stored after serial injection. 2. The drug has a more direct access to the spirochetes in the placenta, owing to the greater vascularity of this organ.

CONCLUSIONS

1. Arsenic is detected in small traces in the fetal tissues after the intravenous injection of neo-arsphenamin into the maternal circulation.

2. The amount of arsenic recovered from the fetal tissues does not increase in proportion to the number of serial injections given.

Table 8.—*Findings in Experiment 8*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	Comment
1st dose, March 26 (5 p. m.)	0.2	..	Animal found dead following morning, March 30	4 embryos found at necropsy; total weight, 400 gm.
2d dose, March 27 (5:30 p. m.)	0.2	24½		
3d dose, March 28 (4 p. m.)	0.2	22½		
4th dose, March 29 (4:30 p. m.)	0.2			

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver............	75	20	2,000	7,500
Placenta..................	70	20	200	700
1 whole embryo..........	100	100	Material lost	
3 fetal livers..............	17	17	*Slight trace*	*Slight trace*

Cat: weight, 3,400 gm.; four injections given.

Table 9.—*Accumulation of Arsenic in Tissues After a Varying Number of Injections*

Animal Used	Number *of* Injections Received	Arsenic Recovered *from the* Placenta, Micro-milligrams	Arsenic Found in Maternal Liver, Micro-milligrams	Arsenic Recovered from Whole Embryo	Arsenic Recovered from Fetal Liver
Rabbit..........	1	420	1,200	0	0
Rabbit..........	1	Not examined	Not examined	Very slight trace	Not examined
Rabbit..........	2	600	1,400	Trace	Slight trace
Rabbit..........	4	Not ex*amined*	Not examined	Slight trace	
Cat.............	2	400	525	Not examined	Slight trace
Cat.............	2	Not examined	Not examined	Slight trace	0
Cat.............	3	750	3,000	Trace	Slight trace
Cat.............	4	700	7,500	Material lost	Slight trace

3. Arsenic is stored in the maternal liver and placenta, the amount increasing with the number of injections.

4. The explanation offered for the efficiency of antenatal treatment of syphilis, especially on the new-born, is that the spirocheticide acts in greater concentration and more directly on the spirochetes in the placenta.

Experimental Inoculation of Man with Syphilis.—G. Thibierge and J. Lacassagne have published a historical review of forty-eight experiments of this kind (*Annales de Dermatologie*, September and October, 1923). They cite a long list of attempts, between 1835 and 1862, to cure lupus, prurigo, leprosy or syphilis by injection of syphilitic material. Later, Pellizzari demonstrated on five student volunteers that the blood can transmit syphilis, but only when fresh. It was in 1906 that Maisonneuve volunteered to prove the efficacy of calomel ointment, and later, Magian, of a French arsphenamin as a preventive of syphilitic infection. In these and other similar negative experiences, monkeys injected with the same virus all developed syphilis.

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[23] Raiziss, G. W.: J. Pharmacol. & Exper. Therap. **19**: 271, 1922.

RESULTS OBTAINABLE THROUGH INSTRUMENTAL TREATMENT OF PYORRHEA

A HISTOLOGIC STUDY *

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The wide dissemination of information concerning research on focal infections in the last decade has brought the physician and the dentist into close cooperation. A great variety of conditions, from rheumatism to insanity, have been attributed by different investigators to dental infections.

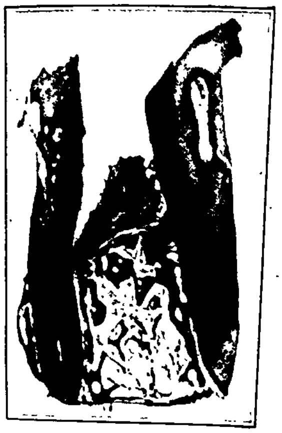

Fig. 1.—Two adjacent bicuspids, their peridental membranes, the septal gum and the intervening alveolar process.

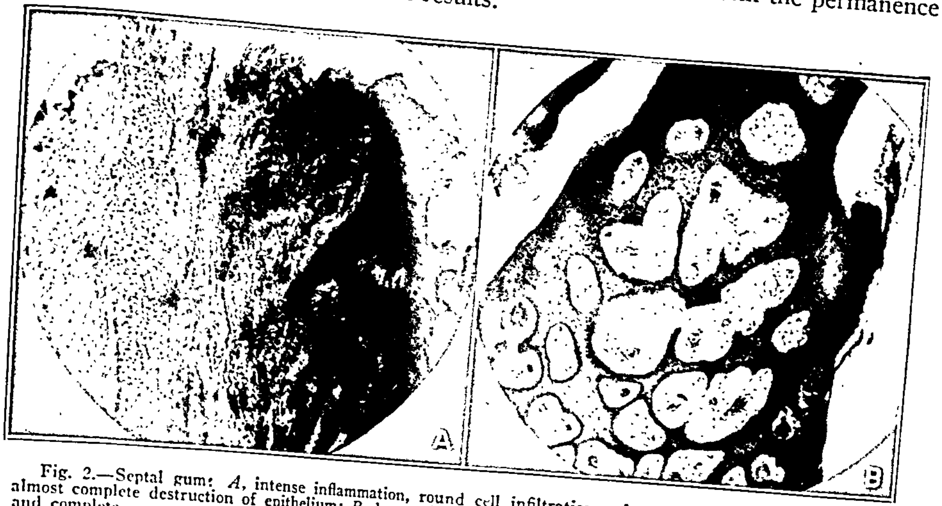

Fig. 2.—Septal gum: *A*, intense inflammation, round cell infiltration, edema, hemorrhagic elements, and almost complete destruction of epithelium; *B*, lessened inflammation, basement membrane and epithelium intact and complete.

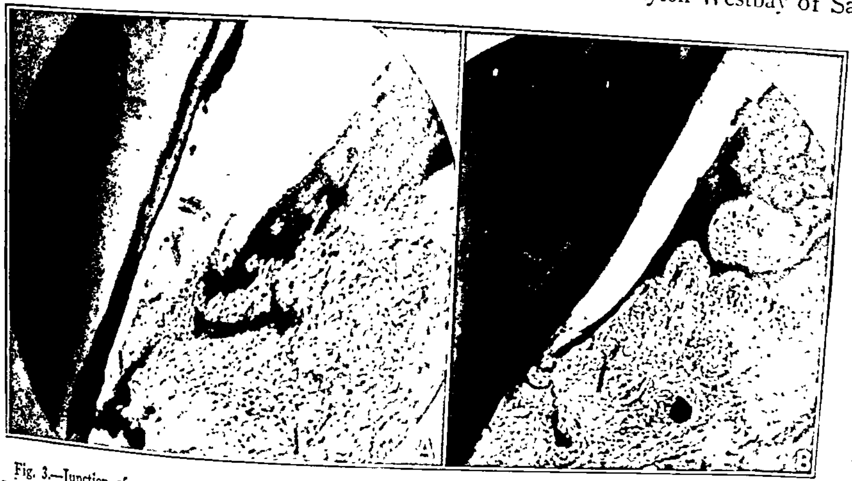

Fig. 3.—Junction of septal gum and tooth: *A*, inflammation, destruction of epithelium, and detachment: *B*, point of junction of gum and tooth: lessened, inflammation, new epithelium, reattachment (tear at bottom of subgingival sulcus probably artefact due to cutting on microtome. New sections are being prepared for a closer study of this detail.

The extremists have no difficulty in disposing of their problems. The radical adopts heroic surgery, and the skeptic disregards the teeth entirely. The man who follows the middle path (and he is representative of the bulk of the members of the two professions) finds it difficult after studying the conflicting literature and reflecting on the variability of his own experiences to orient himself satisfactorily on the relationship of teeth to health. Consequently, any data that may serve to throw additional light on this subject are of interest to him.

Pyorrhea is one of the sources of mouth infection. The physician is interested to know the amount and kind of infection in his patients' mouths, the nature of portals of entry, and the effects obtainable through treatment. He is also concerned with the rapidity with which results can be obtained and with the permanence of such results.

The present study was pursued in collaboration with Dr. W. H. Hanford of Oakland, and Drs. C. O. Patten and Clayton Westbay of San Francisco. It was undertaken in an effort to determine whether a regeneration of tissue, lost through pyorrhea, was possible; whether, if new tissue was formed, it would be merely scar or a true structural rebuilding.

DISEASED TISSUE

Patients were selected from whom pyorrheic tissue might be excised for study of the disease. Roentgenograms were taken before removal of the material, and a very careful record was made of the extent of detachments (depth of pockets). Microscopic examination of the section shown in Figure 1 gave the findings illustrated in Figures 2 *A*, 3 *A*, 4 *A* and 5 *A*.

Figure 6 represents fields from a transverse section of a pyorrheic bicuspid with its circumjacent tissues. Three stages of destruction are evident. At the left is shown partial destructi of the alveolar cess: osteoclastic actio litis at tration in the c e fra ing, *A*, and ie h disappeared and an erosion of the tooth has penetrated through the cementum, *A*, into the detin, *B*.

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* From the California Stomatological Research Group; supported in part by the California State Dental Association.

* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

TREATED TISSUE

A case was now selected, which roentgenographically and clinically was very similar to the preceding. That is, a patient was sought presenting two pyorrheic bicuspids in which the amount of destruction was as nearly as possible the same as that in the case from which the diseased tissue was removed. (It was necessary also to find a case in which the removal of the tissue was justified by prosthetic requirements.)

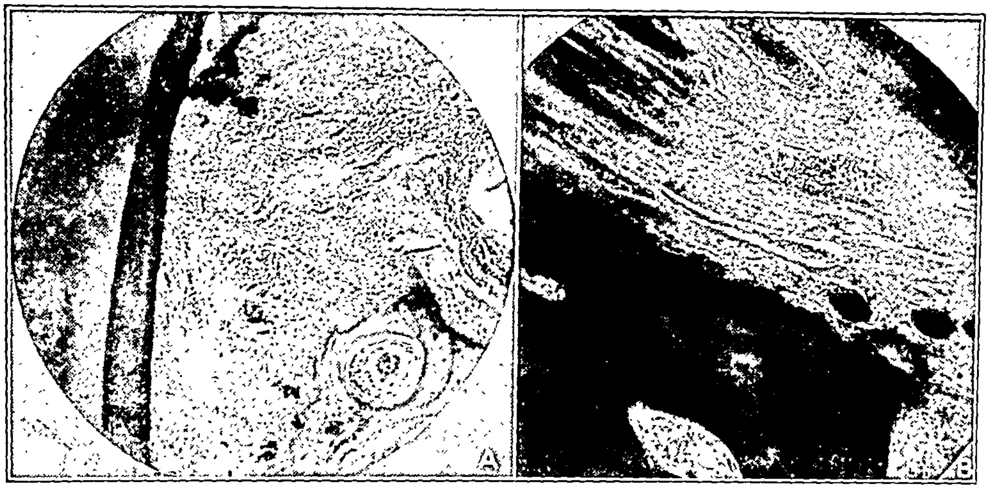

Fig. 4.—Peridental membrane in the region of the crest of the alveolar process: *A*, inflammation of membrane, erosion of bone by osteoclasts, and osteomyelitis; *B*, general repair of bone, lessening of inflammation, absence of osteomyelitis.

Such a patient being found, a very careful instrumental examination was made. The extents of detachments were recorded on a special chart. Roentgenograms were taken with a machine which made it possible to determine the current, time of exposure, angle, position, etc. Photographs were taken and models prepared. The tissues were then treated (by instrumentation, scaling roots and mechanical stimulation) for nine months. A new examination and chart were made; new roentgenograms taken (under the same exposure and from the same relative position as before). Photographs and models were again prepared. According to the data thus obtained, there was an average lessening in depth of pockets of about 2 mm. The tissue was now excised and prepared for the microscope (Figs. 2 *B*, 3 *B*, 4 *B* and 5 *B*).

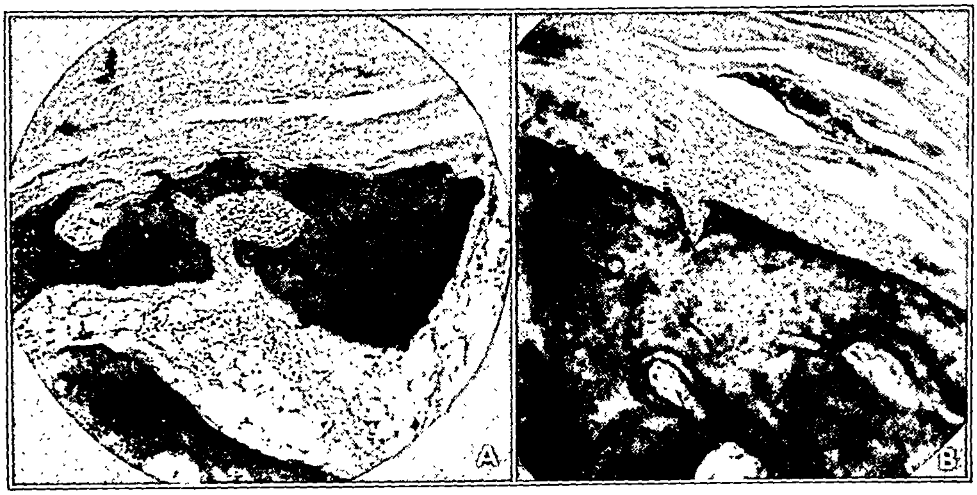

Fig. 5.—Crest of alveolar septum between the two teeth: *A*, osteoclastic action on bone and osteomyelitis; *B*, filling in of bone; one salient of destruction persisting; lessened inflammation.

CONCLUSIONS

As a result of this work, we believe that instrumental treatment of pyorrhea is beneficial, that some regeneration takes place, and that the histologic picture of the treated tissue is essentially constructive, while that of the diseased tissue is essentially destructive. The amount of regeneration possible we hope to determine by further work; we are also seeking methods for augmenting the repair. From bacteriologic studies in progress, we believe that the infection is rapidly and materially lessened by treatment.

The original staff of workers has now been increased to include three physicians, two bacteriologists, one chemist, one biochemist, four dentists and two student assistants. It is organized as the California Stomatological Research Group. A composite study of pyorrhea and allied problems is being made. The work is being carried on at San Quentin Prison, through the support of Warden James A. Johnston, and with the cooperation of Dr. L. L. Stanley, resident physician. The services of the members of the group are largely volunteer; some financial support is being received from the California State Dental Association. The work is also being strongly aided by Dean Guy S. Millberry of the University of California Dental College.

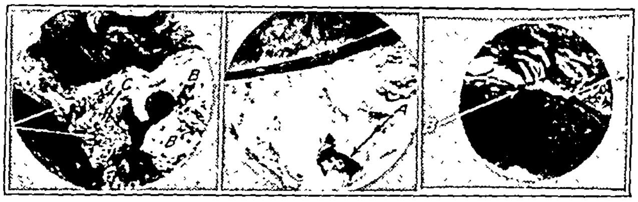

Fig. 6.—Fields from a transverse section of a pyorrhetic bicuspid with its circumjacent tissues: At left, partial destruction of alveolar process; *B*, osteomyelitis; *C*, osteoclastic action; in center, only one fragment remaining; at right, complete disappearance of bone; erosion of tooth has penetrated through cementum, *A*, into dentin, *B*.

Diet.—Diseases of the large bowel are assuming increased importance owing largely to their becoming more common. This is probably to be attributed more to modern methods of dietary than to any other factor.—Mummery.

OSTEITIS FIBROSA

REPORT OF CASE *

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The case here presented is of especial interest because of the disastrous cosmetic result which would of necessity follow radical surgical treatment.

On account of its slow development without influence on the general health, and the fact that a supposedly similar tumor had been successfully removed from the left maxilla seven years previously, it was thought to be not malignant, especially as no metastases had developed.

As the disease is now so wide spread, involving, as it does both sides of the lower jaw and the remaining right maxilla posterior to the first bicuspid, it is a problem to decide on proper treatment.

The previous removal of the left maxilla had left a large hole in the antrum; but, fortunately, as the natural ostium has closed there is no derangement of speech, an unusual sequence, which probably would not follow if the right maxillary tumor were removed in the same radical manner. The roentgenogram revealed narrow lines of rarefaction between the bony tumor and the cortical bone, which was very thin, suggesting a bony mass within a cyst.

INDICATIONS FOR TREATMENT

This suggested conservative surgical treatment, as at times cysts within bone disappear spontaneously or after a pathologic fracture; even puncture and aspiration for diagnostic purposes has stimulated resolution, possibly in the same manner that aspiration of a serous pleural effusion often activates a resorption. Consequently, only the mass, which was encroaching on the tongue and floor of the mouth, as well as a cherry-size tumor in the right upper first bicuspid region, was removed, and to date the condition has remained satisfactory; in fact, the roentgenogram shows the remaining bone to be more dense than before operation.

Following the operation, a portion of the tumor mass, 1 by 2 cm., became a sequestrum through infection, and was removed from the lower jaw. Nothing has been done with the three remaining tumors, situated in the rami and bodies of each side of the lower jaw, and in the upper right maxilla posterior to the bicuspid region.

The disease seems to be some disorder of metabolism, although a roentgenogram shows a normal sella turcica, and the microscope reveals a destruction of normal bone by fibrosis, with the development of new bone within the fibrous structure.

REPORT OF CASE

A woman, aged 28, had been exceptionally well. Her parents were both well, with the exception that her father suffered from "rheumatism," which was not serious. Her two brothers and nine sisters were living and well. She had diphtheria at 12 years of age, and no other illness. The Wassermann reaction was negative, and blood count normal. At 20 years of age she developed within two days a painful swelling above the roots of the upper molars of the left side; these teeth were extracted, and as the pain and swelling did not subside, the swelling was lanced; but no pus escaped. A week later, some soft tissue was cut away; this promptly healed, and she remained well for two years, when a painful red swelling developed within three days below the lower right cuspid. This was lanced on the outside and drained pus for four months. (We are inclined to think that both of these swellings were acute alveolar abscesses and bear little or no relation to the present condition.)

PHYSICAL EXAMINATION

Six years ago, a painless lump slowly developed above the apexes of the upper left bicuspids. She went to a hospital, where it was cut away. The bicuspids were extracted, leaving the antrum open. The wound gradually healed, with the exception of a large opening into the antrum.

Last summer she sought relief from gradually enlarging painless swellings on each side of the face. Physical examination revealed a hard, painless, regular bony tumor involving the anterior portion of the left ramus and body of the jaw, extending as far forward as the first molar. The mental portion of the jaw was normal, but on the right side an irregular, painless, bony mass extended toward the floor of the mouth, half the way to the midline, and interfered with speech; to the buccal, beginning in the cuspid region, the mass was more regular and extended almost to the angle and involved the ramus, as on the opposite side.

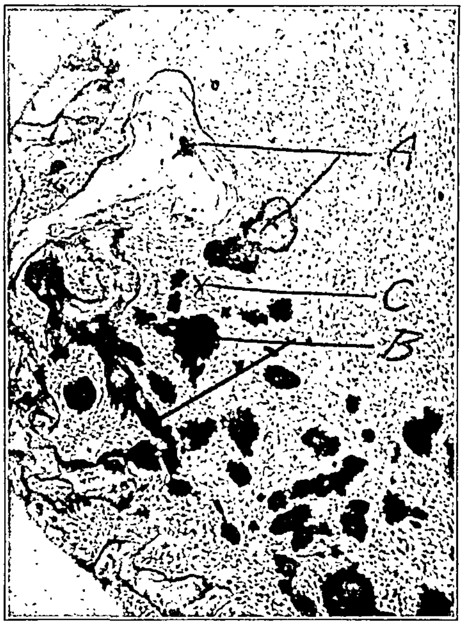

Fig. 1.—*A*, regions of lacunar bone; *B*, irregular, dense calcifications surrounded by *C*, fibrous tissue (8 mm. objective, 4 ocular; section stained with hematoxylin and eosin).

In the right side of the upper jaw was a cherry-size, smooth, similar growth in the first bicuspid region, which tooth was somewhat distorted, its root being included in a portion of the growth. Back of this growth was another one which involved the whole process and tuberosity, the second bicuspid and three molars being firmly embedded in the tumor.

PATHOLOGIC FINDINGS

The roentgenogram revealed abnormal bone of a spongy character quite "moth eaten" and cystic in places, parts of the peripheries being well defined by a narrow space of increased rarefaction. The two tumor masses, removed and examined, measured 3 by 1.5 and 2 by 1 cm., respectively, were nearly oval, and were covered by epithelium on one side; the remaining surfaces were smooth (made by surgical excision). Both were decalcified because of the bone hard nodules felt beneath the surfaces, and sections were made for immediate examination by freezing; other blocks were embedded in celloidin. No essential differences were observed in the sections made by the two methods. Hematoxylin and eosin, thionin and picric acid, and hematoxylin and van Gieson's stain were used.

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* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The epithelial covering was unchanged mucous membrane, except for a little flattening from compression. Between it and the bone was a layer of dense fibrous connective tissue forming a sort of capsule enclosing the deeper structures. The surfaces of the bone toward this capsule were smooth, and in many places covered with thin layers of new bone and, adjacent to these lamellae, many bone-forming cells. On the opposite surfaces of this thin layer of rather cancellous bone, toward the center of the tumor masses, bone absorption was marked and many giant cells lay adjacent to the depressions so formed. The body of the swelling was made up of fibrous tissue, partly absorbed bone fragments, and spicules surrounded by thin layers of amorphous calcification, many vessels, and occasional collections of free blood or orange-yellow, rather amorphous, granular material in single or multiple cavities lined by thin, but dense, fibrous bands. In this central region, giant cells were very rare except adjacent to the cavities just described, where they were found but not at all numerous. The cystlike spaces varied from one third to one eighth of the diameter of a 16 mm. field. The calcification in this central portion was striking because it occurred in the abundant intercellular material of the fibrous connective tissue. There were occasional collections of small, round, mononuclear and plasma cells confined to the inside of the capsule.

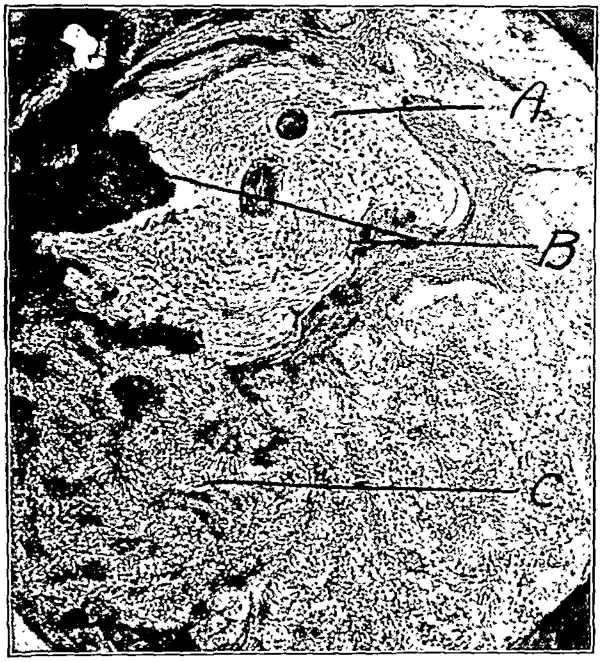

Fig. 2.—*A*, lacunar bone undergoing absorption *(B)*, surrounded by *C*, fibrous tissue with beginning calcification of its intracellular substance (8 mm. objective, 4 ocular; section stained with thionin and picric acid, Schmorl method).

There seemed to be three zones of change: At the periphery, a low grade inflammatory reaction with bone absorption toward the center, and compensatory new bone formation on the periphery. Second, a region made up of dense fibrous tissue with large spindle-shaped nuclei, very abundant intercellular deposits and no evidence of cell division. Calcification of the intercellular substance was frequent. Third, collections of blood more or less absorbed, resulting in the formation of cystlike cavities toward the center of the growth. Cartilage was not found in the sections examined.

COMMENT

The histologic picture is similar in many respects to that of a calcified fibroma; indeed, in this specimen the calcification is much more marked, and the number of giant cells is much less than in the majority of the instances of osteitis fibrosa described. Though the location in the bones of the face is much less common than in the long bones, this is one of the typical sites of the disease. This fact, and the localized, nearly solid, almost noncystic form of the lesions, are well worth emphasizing. The age of the patient, the location of the lesions and the clinical history suffice to distinguish it from Paget's form or leontiasis ossea. The absence of any histologic evidence of either tuberculosis or syphilis, and the negative Wassermann test, make a diagnosis of either of these conditions improbable.

Von Recklinghausen,[1] in 1891, described a disease of the bones previously confused with osteomalacia, cyst formation, fibroma and giant cell sarcoma, quite distinct from a similar bone disease found in the latter decades of life under the name of osteitis fibrosa (cystica). It is characterized by swellings arising from within the bones of young adults and children, associated with bone absorption, replacement of the absorbed bone by fibrous tissue and cystlike cavities, and more or less calcification of the newly formed fibrous tissue.

A generalized form of the disease is to be distinguished from a localized condition confined to one bone or a closely related group of small bones; and a solid type occasionally is found, in marked contrast to those in which the swelling is largely made up of one or more cystlike cavities.

These cystlike cavities seem to result from the incomplete absorption of blood extravasates; the collection of large numbers of foreign body giant cells about such regions give to these growths the appearance of a giant cell sarcoma. Occasionally, the condition may be confused with either syphilis or tuberculosis.

The rate of growth of these masses and cysts is slow; usually the etiology is not known or is unexplainable, although a single injury has preceded the onset in some cases, and, as the lesions advance and recede, the duration is a matter of years. The outcome of the localized form, especially of the single lesion, is usually favorable following treatment. But the prognosis of the generalized type is uniformly bad, death occurring from a cachexia similar to that found in malignant tumors. It is generally supposed that this is a low grade infection or some metabolic disorder rather than a tumor.[2]

31 North State Street—31 West Lake Street.

ABSTRACT OF DISCUSSION

Dr. Josef Novitzky, San Francisco: I cannot tell Dr. Potts what to do with these cases. I wish that I knew. I have had two cases in the last four years which, in effect, may be comparable to this case that Dr. Potts has told us about. Microscopic examination was not made in my patients. Clinically, the picture was one due to septic teeth. Extensive cavitation of cancellous bone (abscess), complicated, in one case, by overdevelopment of subperiosteal cortical bone, caused confusion as to the etiology. In the second case, after surgical evacuation of the bone cavity, the subperiosteal cortical bone was seen to be enlarged up to two years after primary operation on the bone cavity. This patient was not a syphilitic. I wondered whether it might not be that much of this overgrowth of subperiosteal osseous tissue could be comparable to callus which might be reabsorbed as the irritant became less and the periosteum asserted itself.

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[1] Von Recklinghausen, in Festschrift of Virchow's Assistant, 1891.

[2] The number of articles discussing this condition is increasing with each year, so that no attempt is made here to make individual references. Further information may be found in the articles by Bloodgood, J. C.: Ann. Surg. **52:** 122, 1910. Koryjetzky: Arch. f. klin. Chir. **121:** 567, 1922; Beitr. z. klin. Chir. **68,** 1910. Rehu: Arch. f. klin. Chir. **74:** 476, 1904.

Dr. Gordon New, Rochester, Minn.: I should like to congratulate Dr. Potts on his detailed clinical and microscopic study of this very interesting tumor. We all know that a great deal of clinical and pathologic work has been done on malignant tumors of the jaws. I think we should have more papers like Dr. Potts' on a detailed study of benign tumors so that we would have a definite pathologic picture to associate with the clinical one.

Dr. H. A. Tuckey, San Francisco: I should like to bring out the point about the pathologic laboratory and microscopic examination of these malign tumors. It seems to be the fact that laboratory examination will usually return giant cell findings which are naturally of a serious nature. I think our clinical findings should govern us more in these cases than laboratory findings, along with roentgenograms. I speak of one patient in particular who was operated on in 1920. She was a girl, aged 18. She had a tumor-like mass the size of a walnut under the lower first molar, with practically everything absorbed up to the crown of the tooth. The pulp of the tooth was vital. She manifested symptoms of mumps, swelling, and a temperature of 103 F. for two days. That was while she was in the hands of a physician. He suspected a process going on in the jaw, which was substantiated by roentgen-ray examination. Clinically, she had all the symptoms of a possible malignancy. An attempt was made to take out the cyst with a large mastoid curet. The mass was found to be hard, and proved to be an odontoma. I saw this patient, June 8, 1923, and apparently there was nothing further wrong with her. The point I want to bring out is that we cannot depend too much on the laboratory findings alone. Two laboratories reported giant cells, and Stanford Medical School reported benign odontoma.

Dr. Robert H. Ivy, Philadelphia: I have seen three cases of this disease, involving the mandible in every case. In one of them the diagnosis was easy because the patient had been a sufferer for some years from the generalized form of the disease. In the two other cases the lesions were entirely limited to the mandible. Here the question of diagnosis is important, and probably the commonest conditions to be differentiated are adamantinoma and some form of dental cyst. In the latter, one important point in diagnosis is some abnormality of the teeth. In osteitis fibrosa there is no interference by the disease with the eruption of pulp vitality of the teeth. The roentgen ray will show the typical appearance that Dr. Potts showed of a localized rarefaction of the bone with new bone formation within the rarefied area. In one of the cases we had to treat there was a localized tumor in the mandible below the molars which we thought at the time was a dental tumor. I opened it by an external incision, and removed all of the softened diseased tissue without severing the continuity of the jaw. Histologic examination showed fibrous tissue with new bone formation and no epithelial elements. There was no recurrence, and later the external deformity was corrected by a plastic operation.

Dr. Herbert A. Potts, Chicago: I want to say something in defense of the pathologists. If the pathologist is going to help us, we must help him. It is beyond the power of anybody to send a heterogeneous mass of tissue to the pathologist and expect to get a reliable answer from him. We should remember that he is dealing with cells, and we have cells all over the body, similar and dissimilar. He knows, so far as the specimen is concerned, only the dead pathologic condition. The operator has to know the living pathologic condition or at least have some idea of the clinical facts and appearance at the time of operation. In fact, I think that a piece of tissue sent to a pathologist should contain a summary of the clinical history of that case, and then connect that with the case as we see it. We must not malign the pathologist. We must pity him, and he is to be pitied because of some of the things that are required of him. In regard to the cases spoken of by Dr. Novitzky, there was no evidence in these cases of infection, no pus and no cartilage, nothing to lead us to believe that the tumors were of an inflammatory nature. A giant cell sarcoma—anything with sarcoma attached to it—is destructive to life. That is not true of the giant cell sarcoma, which is a misnomer when applied to most jaw tumors containing giant cells. The giant cell sarcoma is not a sarcoma, and consequently we should not get frightened. We have giant cells almost anywhere that one can implant a silk ligature, and the giant cell sarcoma does not follow; consequently, the tumors should be handled conservatively, and the patient will get well. In this paper the treatment of this case has been omitted. We will continue to do what seems to be the best thing to do as time goes on. I will say that, in general, the treatment of bony tumors by the roentgen ray has not been satisfactory.

A MODIFIED RIB-RESECTION OPERATION FOR EMPYEMA

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Numerous articles have appeared in the literature since the war giving arguments pro and con regarding the open and closed methods of treating empyema. The report of the United States Empyema Commission gives very definite facts and data as to the best methods of treating empyema. Its work is conclusive, and has thrown much new light on the subject. Ashhurst[1] says that the conclusion of the empyema commission and the consensus of clinical experience as far as treatment is concerned may be summed up as follows: (*a*) cases of pleural effusion suspected of being purulent should be aspirated, and if the effusion is massive, most of it should be removed by aspiration one or two days before resection of the rib is undertaken; (*b*) if the fluid found on puncture is serous or seropurulent, resection usually may be postponed until frank pus has formed, as the delay will permit the formation of firm adhesions,

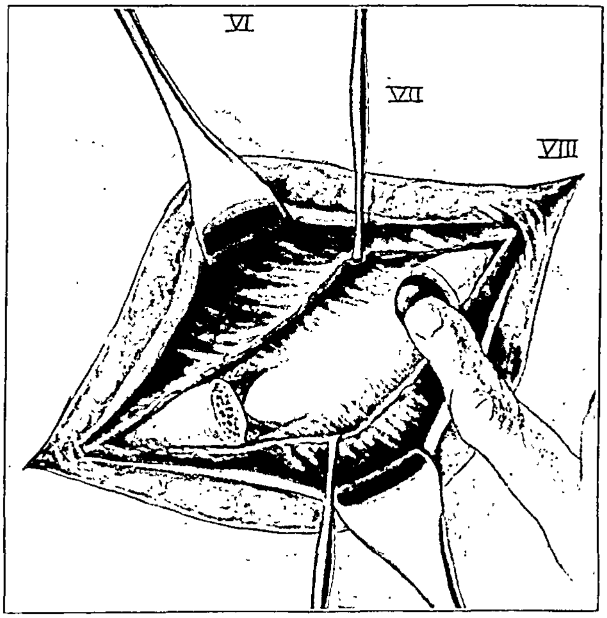

Fig. 1.—Cut ends of rib: The muscle is retracted, and both cut ends are sealed with bone-wax.

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[1] Ashhurst, A. P. C.: Observations on Empyema, Ann. Surg. 72: 12 (July) 1920.

and thus prevent complete collapse of the lung when the empyema is opened. Resection of a rib is necessary for proper drainage. The empyema commission[2] emphasizes the value of antiseptics, especially surgical solution of chlorinated soda, in the sterilization of the cavity.

The adherents of the closed method of treating empyema have always advised against the resection of a rib, and one of their main arguments has been the fact that in about 4 per cent. of the cases, osteomyelitis of the rib occurs, which delays convalescence and necessitates a secondary operation. In this respect, they are right. Brown,[3] in a review of 171 cases of empyema at the Children's Hospital of Philadelphia, found that a secondary operation for osteomyelitis was necessary in 4 per cent. of the cases. Eggers[4] reviewed 192 cases of long-standing empyema, which represented a large part of the empyema residue of the United States army. In a large number of these cases, the chronicity of the illness was due to necrosis of the rib, which caused long-standing elevation of temperature and a discharging sinus, and which was cured only by a secondary operation for excision of the necrotic rib.

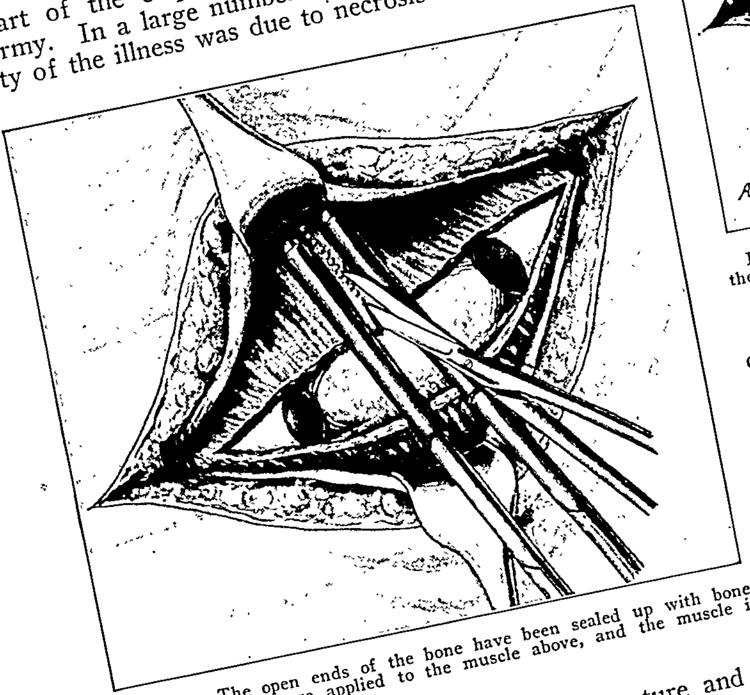

Fig. 2.—The open ends of the bone have been sealed up with bone-wax; two clamps are applied to the muscle above, and the muscle is divided between clamps.

I have often wondered why more cases of rib necrosis did not occur, when I have seen the open marrow ends of the cut rib constantly bathed in pus. The open marrow cavity of the cut rib is an open avenue for sepsis and osteomyelitis. One of the first principles of surgery is to protect exposed surfaces from contamination, and still no attempt seems to be made to protect the open rib from infection. It is a well known fact that the marrow cavity of a bone is easily infected, and these infections are extremely virulent, giving rise to long-standing fever, necrosis of the bone, sequestrum formation, sepsis, with its resulting anemia, and even death. The rib becomes necrotic through continuity of infection when no attempt is made to seal up the open ends of the cut rib. Every surgeon has had innumerable cases in which after resection of a rib for empyema, the patient continues to have a temperature higher than normal, with a progressive anemia, and the roentgen-ray examination shows the chest to be clear; but if the finger is inserted into the chest, the sharp ends of the necrotic ribs can be felt as the offending factor.

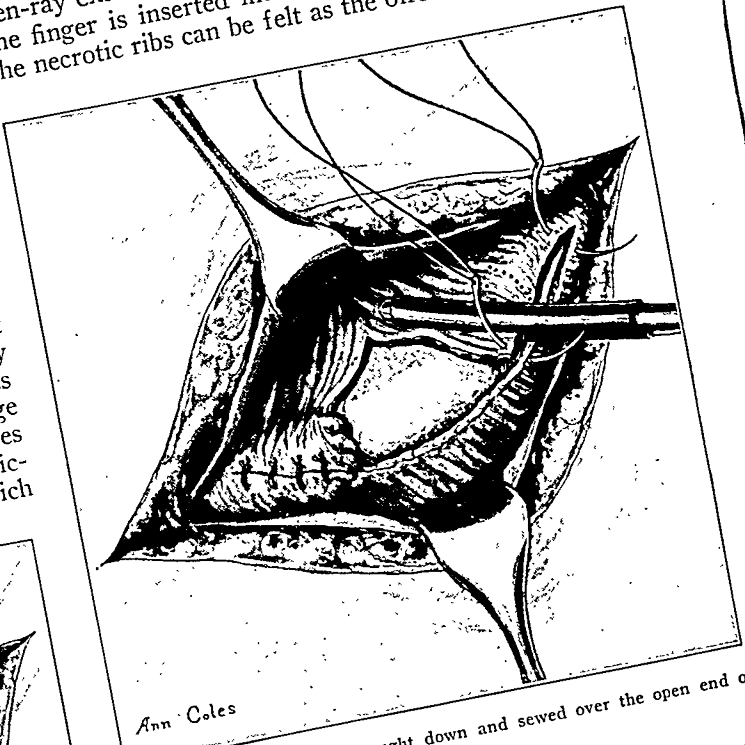

Fig. 3.—The muscle is brought down and sewed over the open end of the bone, completely burying the bone.

With the idea in mind of sealing up the open ends of the resected ribs, so as to prevent their being constantly bathed in pus, and being an open avenue for an osteomyelitis or a sepsis, I have modified the old time-honored rib resection operation.

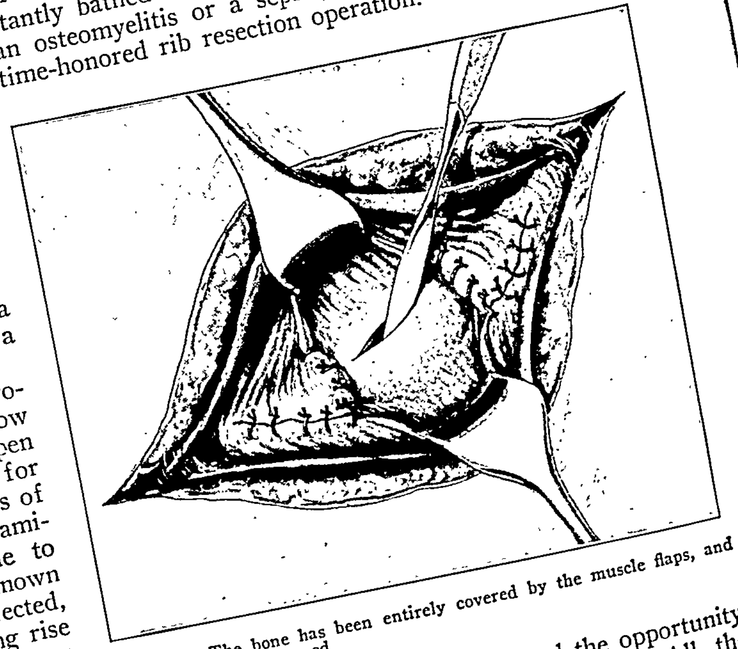

Fig. 4.—The bone has been entirely covered by the muscle flaps, and the pleura is now opened.

In the last three months I have had the opportunity of performing this operation four times. All the patients had a smooth convalescence and all are now perfectly well. So satisfactory have been the results that I shall in the future use this technic in all cases of empyema.

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[2] The Empyema Commission: Cases of Empyema at Camp Lee, Va., J. A. M. A. 71: 366 (Aug. 3), 443 (Aug. 10) 1918.

[3] Brown, H. P., Jr.: Empyema Thoracis, Ann. Surg. 77: 401 (April) 1923.

[4] Eggers, C.: Chronic Empyema, Ann. Surg. 77: 142 (Feb.) 1923.

TECHNIC

Under local anesthesia, the incision is made over the rib to be resected, until the muscle is reached. If this is the eighth rib, the latissimus dorsi muscle is encountered, which is split and retracted. The periosteum is then incised and separated from the rib, and about 2½ inches (6.3 cm.) of rib is removed with the costotome. Care must be taken that the periosteum is not separated too far away from the cut edge of the bone, as the periosteum nourishes the bone, and if too much periosteum is removed, the end of the bone may become necrotic through loss of circulation. I now seal up the open ends of the cut rib with bone wax, as shown in the diagrams. I then put two clamps on the latissimus dorsi muscle, cut between the clamps, and turn the muscle flaps down to cover the open ends of the bone. The muscle is sutured to the muscle below so that the bone is entirely covered and cannot be seen. The open ends of the bone have thus been doubly protected and cannot become necrotic by continuity of the infection. *The pleura is then opened, the suction apparatus introduced*, the pus slowly removed and, when the pleural cavity is dry, a rubber tube is inserted and the skin closed in the usual way with silkworm-gut sutures.

CONCLUSIONS

1. To secure proper drainage in empyema, rib resection is necessary.
2. Osteomyelitis of the rib occurs in 4 per cent. of the cases, resulting in long-standing fevers, anemia and protracted convalescence, and requiring a secondary operation for a cure.

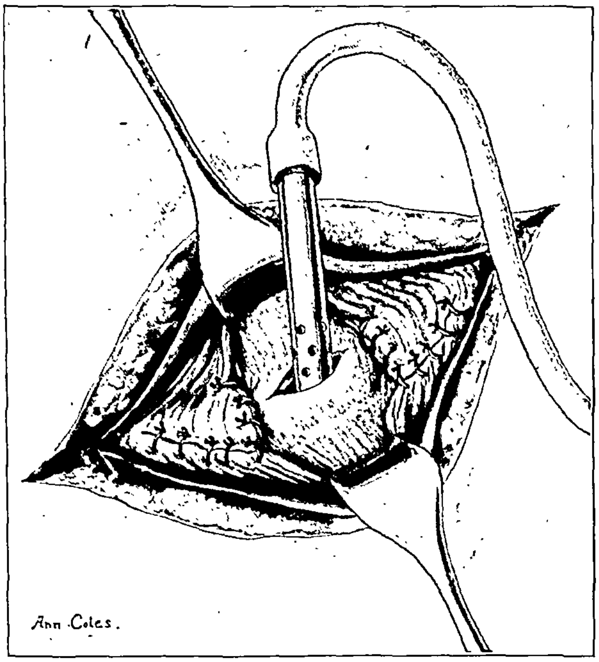

Fig. 5.—The suction apparatus is now introduced and the pus slowly evacuated.

3. The reason why necrosis of the rib occurs is that the open ends of the rib are exposed, are constantly being bathed in pus, and are involved by continuity of the infection.
4. Heretofore, no means has been devised of sealing up these open ends to prevent contamination, thus closing up an avenue of infection that gives rise to a general sepsis.
5. The operation is very simple and takes only a minute more than the usual procedure. It entirely removes the 4 per cent. chance of a rib necrosis and reoperation, and may save months in convalescence.

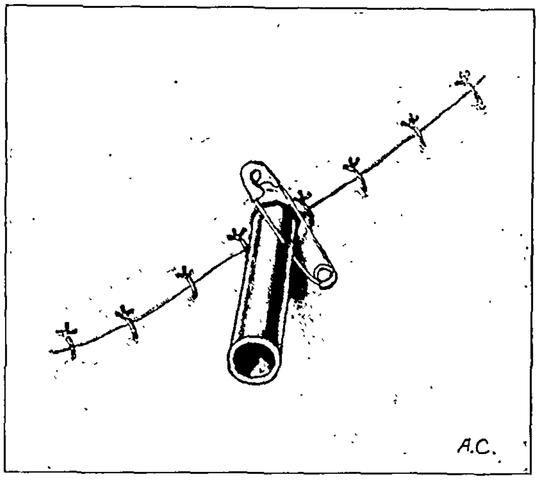

Fig. 6.—A rubber tube is inserted and the skin closed with silkworm sutures.

6. The bone-wax seals up the end of the open rib, and the muscle flap gives added protection.

143 East Twenty-First Street.

PECULIAR REACTIONS BETWEEN THE FIFTH AND SEVENTH CRANIAL NERVES

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Paralysis of the muscles of expression of the same side of the face is a not uncommon sequel of section of the root of the fifth cranial nerve, also of ganglionectomy as practiced for the cure of major trigeminal neuralgia, and it has occurred frequently as a sequel of deep alcohol injections. Although sometimes this paralysis is very marked, it fortunately seems to be always temporary; its occurrence, therefore, from a practical standpoint, is a matter not worth much consideration.

Various theories have been put forward to account for the paralysis, but it must be understood that so far they are still theories, as its cause is not definitely known. It is thought by some to be due to an error in technic; that in some way the seventh nerve is injured during the operation. In the days when it was customary to cut the zygoma and pull down the masseter, such a theory was tenable; but the condition occurs in cases in which the incision does not extend below the zygoma, and in which the zygoma is not resected.

The theory that it is due to interference with the great superficial petrosal nerve was advanced by Hutchinson. This nerve is about the size of an ordinary cotton thread. It arises from the geniculate ganglion of the facial nerve, and passes forward and inward through a canal in the petrous bone. It makes its exit through the hiatus fallopii on the ant surf. ar the apex; it then adheres to the external surface of the dura, and, passing inward behind the gasserian ganglion, leaves the skull by traversing the cartilage filling the foramen lacerum medium. Here it joins the great deep petrosal, which comes from the carotid plexus, and the two unite to form the vidian nerve. Its fibers are motor, secretory and sensory. I cannot understand how an injury to this nerve—the great superficial petrosal—could cause a facial palsy. The theory has been advanced that blood from the site of operation percolates back along the nerve to reach the geniculate ganglion and causes pressure on it. There is no room for blood to so pass alongside the nerve, as the nerve alone or accompanied by a small artery (petrosal) completely fills the canal through which it travels.

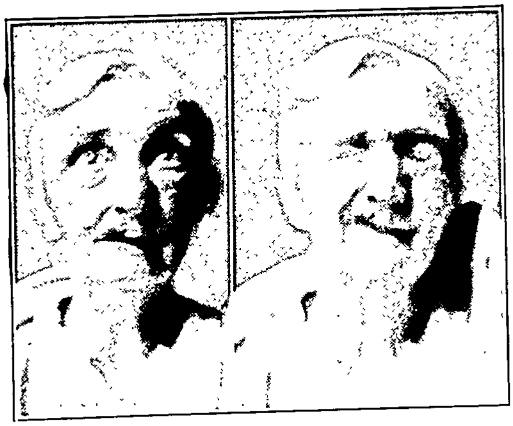

Fig. 1.—Spasm of the facial muscles following section of the sensory root of the fifth nerve; preservation of the motor root: *A*, patient trying to raise eyebrows shows inability to raise right one, probably because of pulling on branch to frontalis with retractor; *B*, patient closing eyes; right closes even more tightly than left; deep furrows from wing of nose to angle of mouth and beyond; marked herpes of upper lip.

Why some one has not suggested interference with the blood supply of the geniculate ganglion as a cause is rather strange. There is a small branch of the middle meningeal artery (petrosal) which goes to the geniculate ganglion, either along the canal traveled by the great superficial petrosal nerve or else along that of the small superficial petrosal nerve. This petrosal branch of the middle meningeal nerve anastomoses at the geniculate ganglion with a twig from the stylomastoid branch of the occipital nerve. If the latter twig were smaller than normal, or if, perchance, it did not happen to reach the geniculate ganglion at all, and the petrosal branch of the middle meningeal nerve were injured—as I believe it almost always is in this operation—then we might expect a paralysis of the facial muscle. Furthermore, we might expect this palsy to appear soon after the petrosal branch was broken. But the palsy does not always appear at once; it may not appear until five days after the operation.

Another theory ascribes as a cause the disturbance of cells in the pontile nucleus of the seventh nerve, due to the avulsion (intentional or accidental) of the root of the fifth or of some of its fibers. If this is so, why is not the sixth nerve affected? Or the fourth? And what about the hypoglossal nerve, to which I shall refer directly? Also how about the facial paralysis after deep alcohol injections? In many cases there is only a slight weakness of the muscles of expression; in others, the paralysis is total.

I just now referred to the hypoglossal nerve. In many there is an accompanying weakness of the same side of the tongue. When it is protruded, the tongue deviates slightly, its tip turning toward the operated side. In some patients this tongue deviation is more marked, but in all that I have so far examined, the tongue, by special effort, could be turned away from the operated side, showing that the paralysis was not total.

I believe that whatever the cause of this paralysis is, it is identical for both face and tongue. Is it possible that the same cause operating can produce no symptoms in one case; a slight facial weakness in another, and a complete paralysis in a third? Is it possible that the simple cutting of the root, or ganglionectomy, or alcohol injection, by depriving the same side of the face and tongue of ingoing stimuli, so lowers the tonus of the underlying muscles that they sometimes fail to respond well or in certain cases do not respond at all? All are familiar with the operation of spinal root cutting for spastic paraplegia. Undoubtedly, the tonus of the spastic muscles is lowered by that operation. The ingoing stimuli from the region of the spastic muscles are excluded.

So much for the paralysis and its cause; but how explain spasm of the facial muscles of the same side following section of the sensory root only of the fifth nerve?

REPORT OF CASES

Case 1.—Mrs. M., aged 78, seen in September, 1922, complained of major trigeminal neuralgia. It began on the left side twenty years before; on the right side, five years before. The pain on the right side was now very severe. The patient had alcohol injections in both sides "many times" in the last twelve years. The sensory root was cut on the right side; the motor root was preserved. As soon as the sensory fibers were cut, the patient's mouth was drawn to the right side (Fig. 1). The spasm continued during the fifteen days that the patient was in the hospital. Herpes of the upper lip and inner canthus developed on the sixth day. The spasm was noticeable even during sleep, but was more marked when the patient attempted to use the facial muscles; the tongue deviated toward the operated side.

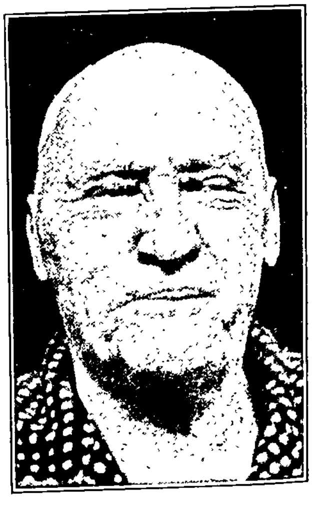

Fig. 2.—The paralysis is sometimes so slight as to escape notice altogether. Mr. G. C. G. was operated on in January, 1922, right side middle division being involved. There was weakness of the right upper lip, which could be noticed only on bringing other muscles into play. The motor root was not saved.

Another point of interest is that in no case of root section in which I am satisfied that I have preserved the motor root (five cases) have I had a weakness of the corresponding seventh nerve; on the contrary, four out of the five have had noticeable spasm of the same side of the face. In none, however, has it been so marked as in Case 1. In all it has been present at the conclusion of the operation.

In addition, the spasm is evanescent, the most marked disappearing in about six weeks; in one patient it disappeared in two days. I saw Patient 1 eight months after operation, and could detect no difference between the two sides. As there had been no muscle atrophy, it is certain that I have saved the motor root. I know of no satisfactory explanation for such spasms.

Case 2 shows that a corresponding paralysis of unknown origin of the fifth nerve can accompany a paralysis of the seventh nerve as a consequence of mastoid operation. The case is the first of the kind I have heard of. It occurred in the service of Dr. H. W. Lyman, of the Department of Otology of Washington University Medical School, who has given me permission to publish this report.

Paralysis of the fifth and seventh nerves following a radical mastoid operation.

CASE 2.—Miss C., aged 18, with a suppurating ear for ten years, had a radical mastoid operation performed, Oct. 14, 1922. At the close of the operation, the corneal reflex was present, showing that the seventh nerve had not been injured. The morning of October 17 (over sixty hours after the operation), the patient complained of irritation of the right eye and continuous lacrimation; in the afternoon of the same day (seventy-two hours after the operation), a weakness of the muscles of the right side of the face was discovered, and the patient complained of a peculiar sensation on that side of the face. A rough sensory test showed diminution of sensation to pain over the area approximating the distribution of the fifth nerve. Anesthesia of the right cornea was also demonstrated. The pupillary reflex was normal.

October 28, the facial anesthesia had disappeared, except that the right cornea was less sensitive than the left. The facial (seventh) paralysis cleared up several weeks later. There was no rise of temperature during this time. The Wassermann reaction was negative; the personal history was negative, and there was no history of any nervous disease in the family.

As remarked in the opening paragraphs, the question is of scientific rather than practical interest (as far as our present knowledge goes). There is not much under the heading of neuralgia in the literature that helps to a solution of the perplexing phenomena referred to here.

REPAIR IN HYDRONEPHROSIS

WITH REFERENCE PARTICULARLY TO EARLY AND LATE CHANGES AFTER RELIEF OF BRIEF OBSTRUCTIONS WHEN OPPOSITE KIDNEY IS NOT DISTURBED *

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SAN FRANCISCO
AND
O. W. BUTLER, M.D.
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The power of accurate determination of the reserve or repair ability of a hydronephrotic kidney is of considerable clinical importance. In hydronephrosis following incomplete obstruction, the most frequent clinical type, estimation of the damage as determined by the usual functional tests is often deceptive and unsatisfactory. With complete obstructions, the only trustworthy guide is the accuracy of our knowledge by clinical observation of how many days the total obstruction has existed; and with either type the evidence of repair, whether good or bad, as first found on relief of obstructions, may be totally different in degree and kind in the course of several years afterward.

The significance of the difference in the early and late changes following relief of obstructions of equal duration, when the opposite kidney is undisturbed, has been emphasized by one of us[1] in several previous publications, and is best understood in comparison with the repair changes of similar experiments to which either the opposite kidney is totally removed at the time of the repair procedure or is gradually removed by some progressive injury, such as partial obstruction of its ureter. In the first place, the repair kidney is suddenly called on to do total function; in the second, the demand comes gradually.

Experimentally, it has been determined that fourteen days is about the limit of complete obstruction compatible with life after opposite nephrectomy, but that even a thirty-day complete hydronephrosis will recover total function when the shift of the burden has been gradual.

Both the fourteen and the thirty day hydronephrosis under these different circumstances eventually do the work of total function about as efficiently as a normal kidney does after compensatory hypertrophy following opposite nephrectomy, and are experimental examples of the remarkable power of hypertrophy of renal tissue.

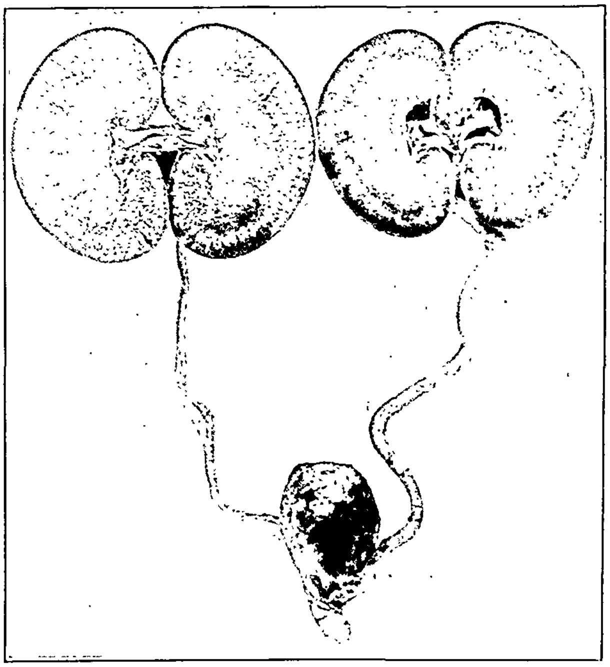

Fig. 1.—Complete left ureteral obstruction at bladder: After seven days' obstructive period, ureterocystoneostomy was performed; result after a repair period of twenty-four days (operated side on the right).

That this power manifests itself as a measure of necessity only is exemplified by the experiments of this paper, in which the opposite kidney is not injured or removed. In fact, a comparison of the repair kidney of Experiment 2, a thirty day hydronephrosis, and a twenty-four day repair, and of Experiment 3, a twenty-one day hydronephrosis and a 249 day repair, shows a change quite the opposite of a hypertrophy, namely, a marked renal atrophy.

The nature of this atrophy is of interest. Rautenberg[2] has said that hydronephrotic atrophy is a pro-

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* From the Urological Department of the University of California Medical School, and Hooper Foundation for Medical Research, San Francisco.

[1] Hinman, Frank: Renal Counterbalance: An Experimental and Clinical Study with Reference to the Significance of Disuse Atrophy, J. Urol. **60**: 289 (April) 1923; Experimental Hydronephrosis: Significance of Compensatory Hypertrophy and Disuse Atrophy to Repair, J. A. M. A. **80**: 315-319 (Feb. 3) 1923.

[2] Rautenberg, E.: Die Folgen des zeitweiligen Ureterverschlusses, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **16**: 431, 1906.

gressive degeneration like nephritis, and while relief of obstruction may give temporary repair, the eventual condition is renal destruction. Johnson[3] has raised the same question of the functional recovery of hydronephrosis if the opposite compensatory kidney is not removed, and it is in confirmation of the necessity of the stimulus of compulsory function for hydronephrotic repair and hypertrophy that the present paper is presented.

EXPERIMENTAL FINDINGS

Dogs were used in the experiments, and were operated on under ether anesthesia and complete surgical asepsis. At the first operation, the left ureter was doubly ligated as near the bladder as possible, and cut between the ligatures. At the second operation, seven, *fourteen, twenty-one, or twenty-eight* days later, the dilated ureter was transplanted to the bladder, the simplest method possible being used. The open, dilated ureter was passed through a small incision in the posterior bladder wall and anchored, care being taken to allow no leakage of urine and no kinking of the ureter. Recovery followed promptly, with the exception of one dog, which died three days after the second operation. Five of the animals, with seven, fourteen, fourteen, twenty-one and twenty-eight days of complete ureteral obstruction, respectively, were given a drainage period each of twenty-four days, and were then killed. Two dogs with a fourteen and twenty-one day hydronephrosis, respectively, were each allowed a 249 day repair period.

Many factors other than time enter into the question of repair, of which infection and a poor surgical result are the most important. If infection leading to pyelonephritis or pyonephrosis occurs, very little repair takes place; and if the obstruction is not totally removed or the anastomosis does not function properly, a partial obstruction results, and the repair cannot be complete even if the obstruction originally was of short duration. The following three experiments exemplify results, uninfluenced by either of these two factors:

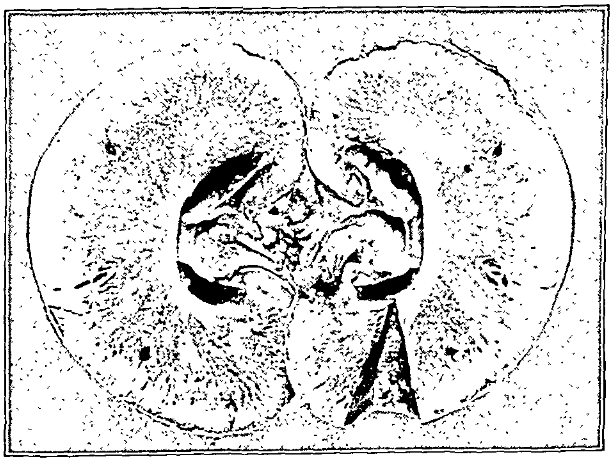

Fig. 2.—Hydronephrosis that results after complete ureteral obstruction for seven days; comparison with Figure 1 shows the recovery that takes place after twenty-four days of repair.

Experiment 1.—In a dog weighing 19 pounds (8.6 kg.), there was complete obstruction of the ureter for seven days. After a ureterocystoneostomy, and a repair period of twenty-four days, the seven day hydronephrosis returned in twenty-four days to practically the appearance of a normal kidney. Grossly, there is still a slight dilatation of the pelvis and ureter (Fig. 1). Microscopically, other than a number of small focal intertubular accumulations of lymphocytes and plasma cells, the appearance was normal. Figure 2 shows a simple hydronephrosis of seven days, for comparison.

Experiment 2.—In a dog weighing 18½ pounds (8.4 kg.), there was a complete obstruction of the ureter for twenty-eight days. After a ureterocystoneostomy, there was a repair period of twenty-four days. The urine showed a few hyaline and granular casts, with an occasional pus cell. At necropsy, there was no constriction at the site of the anastomosis. The repair kidney appeared somewhat smaller than the opposite normal kidney. The capsule was shrunken and the superficial veins were more prominent (Fig. 3). A simple hydronephrosis of twenty-eight days' duration is shown in Figure 4 for comparison. On section, a moderate dilatation of the renal pelvis was manifest, and the ureter remained dilated to about the same degree as was found at the second operation. Histologic study showed evidence of hydronephrotic atrophy; the tubules, particularly those just beneath the capsule, had a tendency to be flattened, and to run parallel to the surface of the kidney. In a number of places there was a rather marked focal fibrosis and infiltration with lymphocytes and plasma cells. The glomeruli varied considerably in size. Some were slightly larger than normal, while others, particularly those in the scarred areas, were small. Gross and microscopic examination showed pathologic changes, but preservation of renal tissue was remarkable in view of the degree of destruction at the time of repair, and probably would even have been sufficient to maintain life had the opposite kidney been removed.

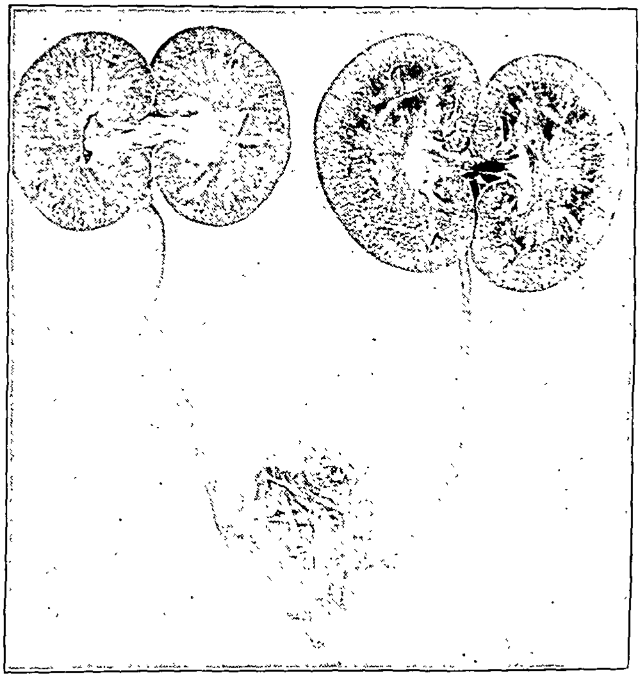

Fig. 3.—Complete left ureteral obstruction at bladder: After twenty-eight days' obstructive period, ureterocystoneostomy was performed; result after a repair period of twenty-four days (operated side on the left).

The degree of restoration within twenty-four days of a seven and twenty-eight day hydronephrosis promises well for a longer period of repair, provided the improvement is progressive. But it must be remembered that these repair kidneys work in partnership with not only a healthy, but a compensatory, kidney, and will therefore lack progressive stimulation. The capability of the compensatory kidney is such as to leave less and less for the repair side to do. In place of improvement with time, the repair side will undergo a degeneration which is of the nature of a disuse atrophy. Experiment 3 is a good example of such a disuse atrophy.

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[3] Johnson, R. A.: Renal Function in Hydronephrosis, J. Exper. Med. **28**: 193 (Aug.) 1918.

Experiment 3.—In a dog weighing 20 pounds (9 kg.), there was a complete obstruction of the left ureter for twenty-one days. After a ureterocystoneostomy, and a drainage period of 249 days, the urine was free from bacteria and pus. The dog was killed, under ether, with preliminary functional study. The appearance time of phenolsulphonephthalein was four minutes for the right kidney, and eight minutes for the left. In the first fifteen minutes, 25 per cent. of the dye was excreted by the right kidney, and 5 per cent. by the left; in the second fifteen minutes, 20 per cent. by the right kidney and 2.5 per cent. by the left, the total excretion for the first half hour being 45 per cent. for the right kidney and 7.5 per cent. for the left. At necropsy, the left kidney weighed 15 gm.; the right, 48 gm. The ureter was freely patent. There was no pelvic dilatation on section, and no evidence of infection. Figure 5 shows that the left kidney is reduced to one-third its size, and that even in the gross, cortical atrophy is quite marked.

SUMMARY

A hydronephrosis of seven days' duration from total ureteral obstruction returns anatomically and functionally to about normal. The recovery is more prompt if the opposite kidney is removed or so diseased that it is incapable of complete function. The recovery of a hydronephrosis of from fourteen to twenty-eight days' duration requires the stimulus of compulsory function which in the longer period must be gradually and not suddenly applied. If left in partnership with the normal kidney, which meanwhile has undergone compensatory hypertrophy, atrophy will replace the initial repair, an atrophy of the nature of a disuse atrophy, even in the case of hydronephrosis of shorter duration.

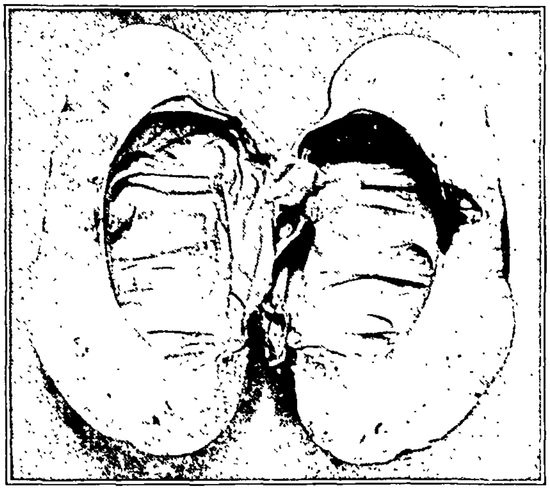

Fig. 4.—Hydronephrosis that results after complete ureteral obstruction for twenty-eight days; comparison with Figure 3 shows the recovery that takes place after twenty-four days of repair.

CONCLUSION

1. There is considerable initial recovery of function and repair hypertrophy of a kidney after relief up to twenty-eight days of total obstruction.

2. This recovery, even after shorter periods of obstruction (fourteen days), is temporary if the healthy kidney is undisturbed, and in the course of several months an atrophy of the nature of a disuse atrophy replaces it.

ABSTRACT OF DISCUSSION

Dr. Albert E. Goldstein, Baltimore: One question that I asked Dr. Butler has not been answered conclusively. In the presence of a hydronephrosis that is uninfected, should we perform a nephrectomy, if a small percentage of phenolsulphonephthalein is being excreted? Are we justified in removing that kidney, or shall we, if a stricture is present, dilate the stricture in the hope that the kidney will return to function? Certainly in the noninfected cases I feel as if we should not be too radical. Experiments of others have apparently proved the fact that eventually it will have to come out because it will finally be so destroyed that it will be of no use. At present I have several cases of hydronephrosis in which there are strictures of the ureter. Should I go on treating these patients, dilating the ureter, or should I perform a nephrectomy?

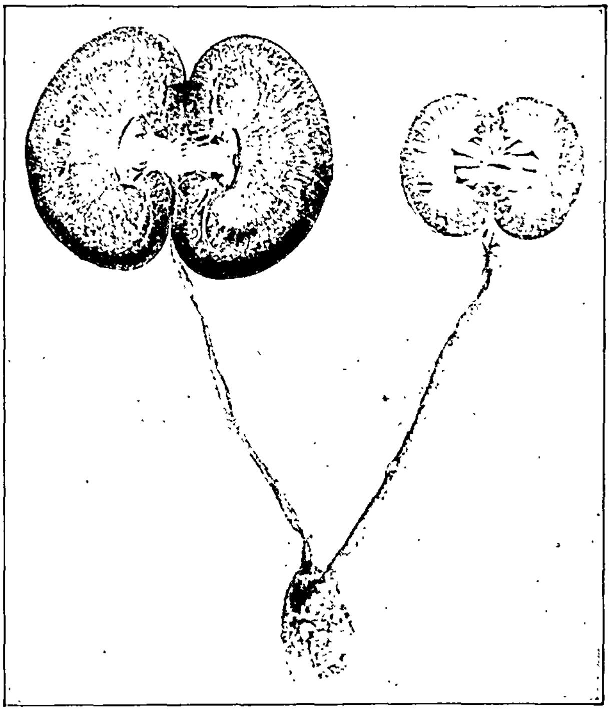

Fig. 5.—Complete left ureteral obstruction at bladder: After twenty-one days' obstructive period, ureterocystoneostomy was performed; result after a repair period of 249 days; urine free from pus and bacteria; phenolsulphonephthalein, right kidney, 45 per cent.; left kidney, 7 per cent. (operated side on the right).

Dr. O. W. Butler, Los Angeles: Experimentally, this work tends to prove that if the kidney has been damaged to the extent that the phenolsulphonephthalein output is very low, it is useless to put that kidney back into competition with the opposite kidney if compensatory hypertrophy has taken place. We believe that it is better to do a nephrectomy rather than to attempt repair, provided the other kidney is healthy and fully compensating.

Infrequency of Tabes Dorsalis in Siam.—It may safely be estimated that between 80 and 90 per cent. of the male population in the cities suffer from venereal infection at some time, and only to a less degree in the country. Certainly more than half the females become infected before they reach the age of 21. We find eye complications that vary all the way from complete blindness to slight visual incapacitation. Sterility, invalidity of various degrees and kinds and the other venereal complexities, primary, secondary and tertiary, are common. *Of many thousands of patients* examined during the last five years, only two cases of tabes dorsalis have been recognized.—R. W. M[illegible]son: [illegible]. *J. Pub. Health* **13:**830 (Oct.) 1923.

FASCIAE OF THE UROGENITAL TRIANGLE *

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Before proceeding to a discussion of the anatomy of the perineum, it is interesting to note that the pure anatomist has no counterpart for some of the terms used by the surgeon. Denonvilliers' fascia, the recto-urethralis muscle, Buck's fascia and Colles' fascia are surgical terms used to designate conveniently certain anatomic landmarks which to the anatomist are not definite structures. The lack of liaison between the dissecting room and the operating amphitheater is responsible for much of our inaccurate knowledge and bizarre perineal surgery.

Probably because of the hardened fasciae in embalmed bodies, there is a tendency for the dissector to consider the urogenital diaphragm as the keystone of the perineum, the other structures being formed secondarily, and to discredit all theories that do not presuppose the presence of a primary rigid double walled triangular membrane perforated by the urethra. This is largely an assumption which the embryologic facts as shown in the preparation and study of the fetal pelvis to be described do not warrant, and the urogenital diaphragm is to be regarded rather as an after-development to the urethra, muscles and other structures, and derived essentially from a condensation of loose mesenchymal tissue. To this fact, and to the consideration of the anatomy of the fascia of the perineum as well as the pathologic significance of the endopelvic fascia, particularly as related to extravasation, this article is largely devoted.

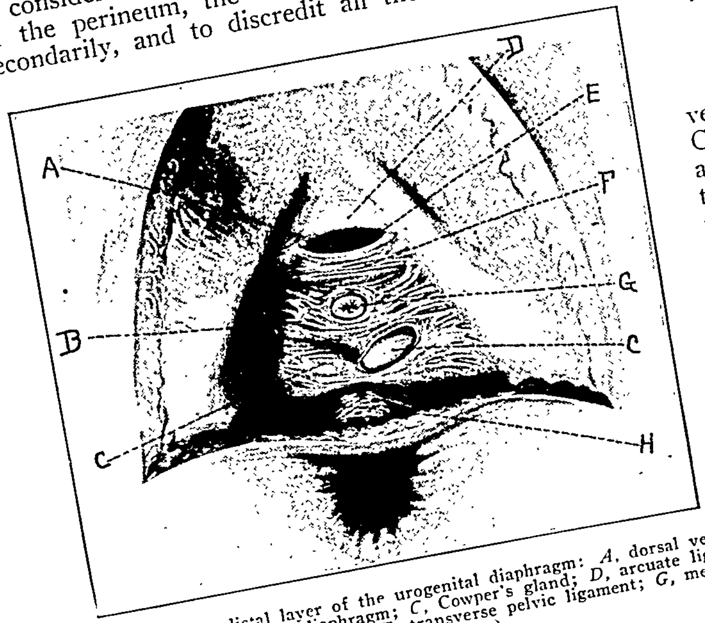

Fig. 1.—The distal layer of the urogenital diaphragm: *A*, dorsal vein of penis; *B*, urogenital diaphragm; *C*, Cowper's gland; *D*, arcuate ligament; *E*, internal pudic artery; *F*, transverse pelvic ligament; *G*, membranous urethra; *H*, anal sphincter (Tandler).

MATERIAL AND METHODS

This investigation has been confined to the male perineum. The gross material used consisted of frozen cross sections and of dissections of preserved and fresh cadavers, some of which were first injected with colored fluids through an endoscope, thereby simulating extravasations of urine from a ruptured urethra. In addition, serial sections of human embryos of various stages of development were studied. A glass model was constructed of the pelvis of a term fetus cut transversely in sections 100 microns thick (Specimen 2409, Carnegie Institute of Embryology). With the aid of an Edinger projection apparatus, the important structures were traced directly on glass plates by means of various colored inks. Distortion of the model was prevented by keeping the magnification in proportion to the ratio between the thickness of the sections and that of the plates. The glass plates were then stacked, divided into packs about 4 inches thick, bound firmly with adhesive plaster, and mounted in a frame with electric lights behind, so as to give a transparent presentation of the entire region.

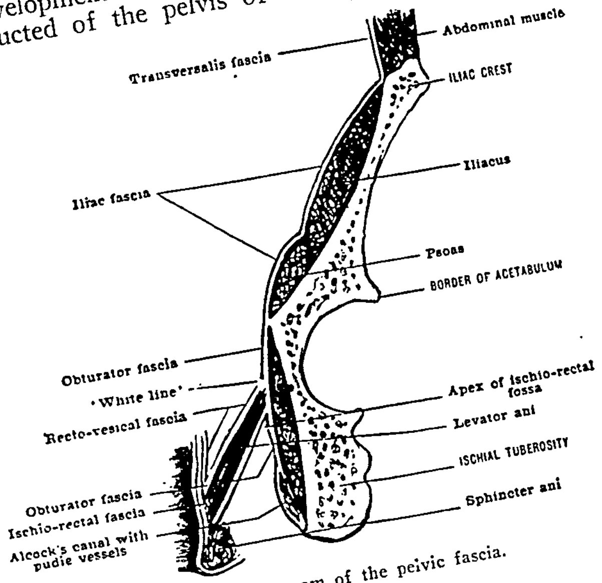

Fig. 2.—Diagram of the pelvic fascia.

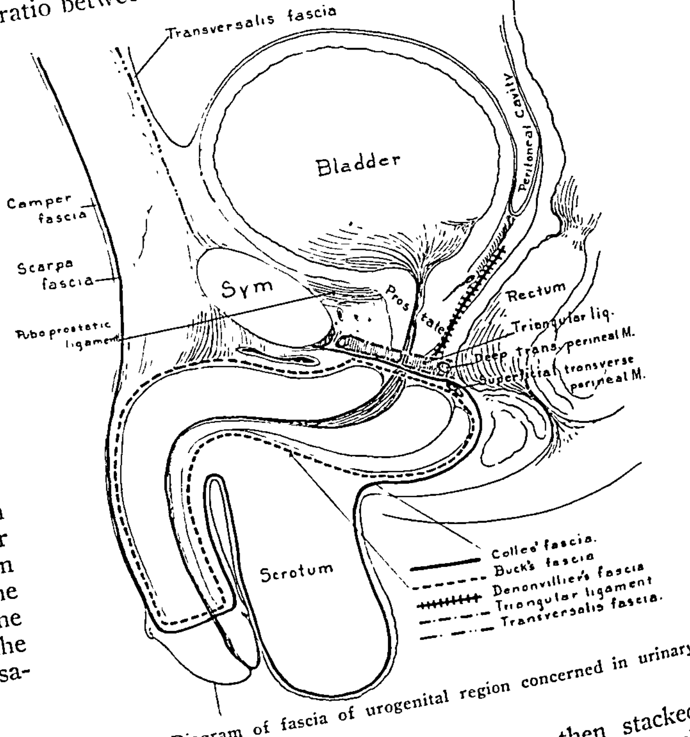

Fig. 3.—Diagram of fascia of urogenital region concerned in urinary extravasations.

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* From the George Williams Hooper Foundation for Medical Research and the Department of Urology, University of California Medical School.

* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

PELVIC AND PERINEAL FASCIAE

For descriptive purposes, the pelvic and perineal fasciae may be briefly considered as follows:

The pelvic outlet is divided into an ischiorectal region and a urogenital triangle. The latter has the symphysis pubis in front, the ischiopubic rami as far back as the anterior portion of the tuberosities on the sides, and an imaginary line joining the two behind. It is closed by the urogenital diaphragm, which is generally considered as consisting of proximal and distal fascial layers (Fig. 1). The anterior borders fuse and constitute the transverse perineal ligament, separated by the dorsal vein of the penis from the subpubic or arcuate ligament, which occupies the arch of the pubes. The lateral borders of the urogenital diaphragm are attached to the sides of the pubic arch; its superficial and deep surfaces are associated with contiguous muscles,[1] and its base is formed by the deep transverse perineal muscles. The superficial and deep layers of the urogenital diaphragm may blend so as to appear as a heavy one-layer fascia that splits to enclose the muscle structures and the pudic vessels. According to Delbet,[2] there is no deep layer of the triangular ligament. Deaver[3] suggested calling it the forward continuation of the anal fascia. Smith[4] thinks it is the aponeurosis of the levator ani. Cunningham[5] calls it the parietal layer of the pelvic fascia. Stoney[6] states that it is an extension of the visceral layer, while Campbell[7] considers it a prolongation of the obturator fascia across the pubic arch. Undoubtedly, the urogenital diaphragm consists of extensions of both parietal and pelvic fascia.

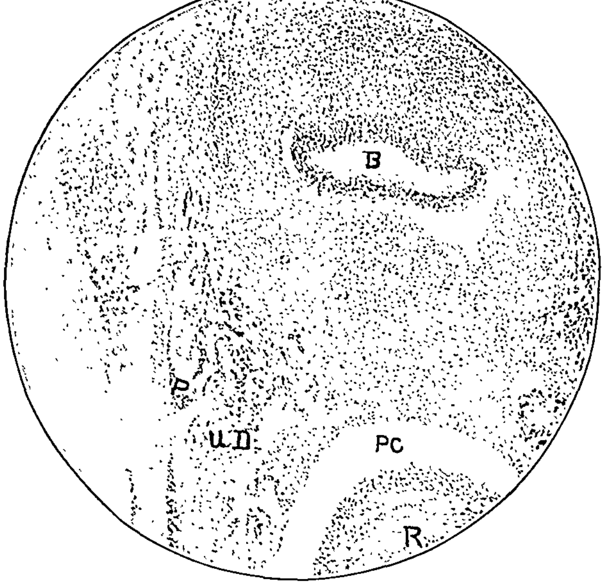

Fig. 4.—Transverse section through pelvis of 26 millimeter human embryo, showing site of urogenital diaphragm: *B*, bladder; *P C*, peritoneal cavity; *R*, rectum, *U D*, urogenital diaphragm; *P*, pudic artery (embryo, Carnegie Institute 782, slide 92, row 2, section 2).

The rectovesical fascia covers the upper surface of the levator ani muscle and is an extension of the pelvic fascia (Fig. 2), which, though ending in name at the white line, in reality continues downward and at a slightly lower level again splits into two layers, one, the ischiorectal or anal fascia, lying against the under side of the levator ani muscle, while the other, the obturator fascia, covers the obturator internus muscle.[8] Varied

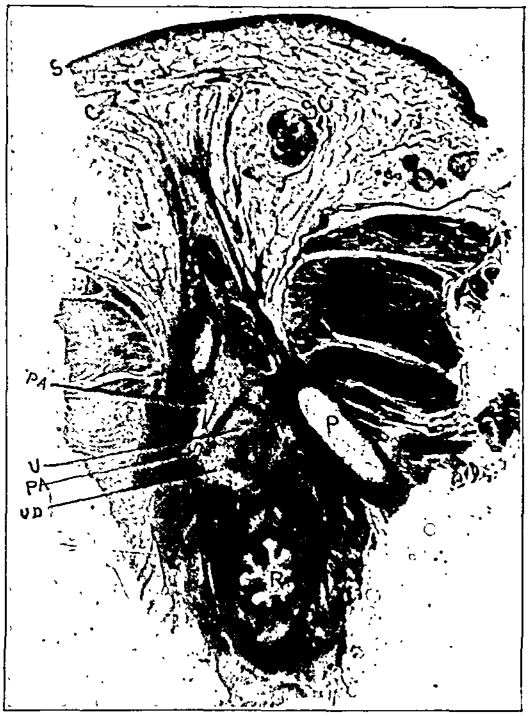

Fig. 5.—Transverse section through urogenital diaphragm of term fetus: *P A*, pudic artery; *U D*, urogenital diaphragm; *R*, rectum; *S*, skin; *U*, urethra; *SC*, spermatic cord; *C*, Colles' fascia; *P*, pubes (embryo, Carnegie Institute 2409, slide 155) × 1.5.

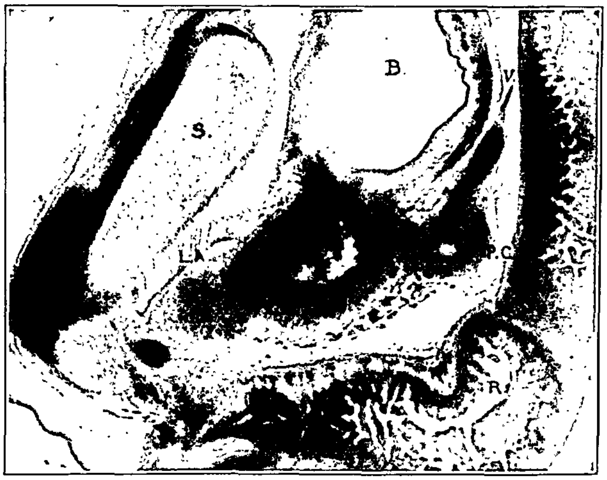

Fig. 6.—Sagittal section through left lobe of prostate of 67 millimeter human embryo showing relation of levator ani muscle to prostate: *B*, bladder; *V*, vas deferens; *S V*, seminal vesicle; *P*, prostate; *P C*, peritoneal cavity; *R*, rectum; *S*, symphysis pubis; *G*, nerve ganglions; *L A*, levator ani muscle (embryo, Carnegie Institute 1656, slide 49); slightly reduced from a photomicrograph × 18.5.

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[1] Barnes, A. R.: The Pelvic Fascia, Anat. Rec. **20**: 37-56, 1921.

[2] Delbet, P.: Vessie urètre, prostate, verge, perinée, in Poirier and Charpy: Traité d'anatomie humaine, Paris **5**: 74-240, 1907.

[3] Deaver, J. B.: Surgical Anatomy, Philadelphia, P. Blakiston's Son & Co. **2**: 589-622, 1899-1903.

[4] Smith, G. E.: Studies in the Anatomy of the Pelvis with Special Reference to the Fasciae and Visceral Support, J. Anat. & Physiol. **42**: 198-218; 252-270, 1908.

[5] Cunningham, D. J.: Text Book of Anatomy, New York, William Wood & Co., 1906, pp. 1277-1278.

[6] Stoney, R. A.: The Anatomy of the Visceral Pelvic Fascia, J. Anat. & Physiol. **38**: 438-477, 1904.

[7] Campbell, W. F.: A Text Book of Surgical Anatomy, Philadelphia, W. B. Saunders Company, 1921, pp. 471-497.

[8] Hadden, David: The Gynec [illegible] New York, the Macmillan Company, 1915, pp. 11-

descriptions of pelvic fasciae and perineal structures are due not so much to incorrectness of descriptions as to misinterpretations of facts, based on alterations in detail found in the postmortem and embalmed specimens. The viscera and blood vessels that supply the perineal structures are invested with the remains of mesenchymatous tissue in which they originally developed.[9] It is condensed in the perineum to form definite ensheathing layers, and then passes gradually into the general mass of subperineal tissue which fills the whole pelvic cavity and then is no longer traceable. All fasciae are made up of these visceral mesenchymatous extensions and the aponeurotic sheaths of the muscles (parietal pelvic fascia).

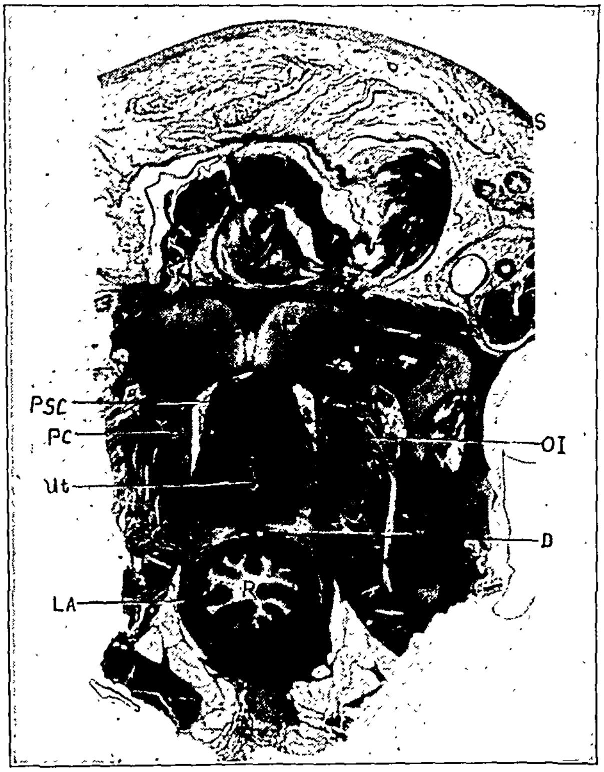

Fig. 7.—Transverse section through prostate of term fetus, showing the course of levator ani muscle: *S*, skin; *P*, pubes; *Ut*, utricle; *L A*, levator ani muscle; *P C*, pubococcygeus muscle; *P S C*, ligament pubosacrococcygeus; *O I*, obturator internus muscle; *R*, rectum; *D*, Denonvilliers' fascia (embryo, Carnegie Institute 2409, slide 98) × 1.5.

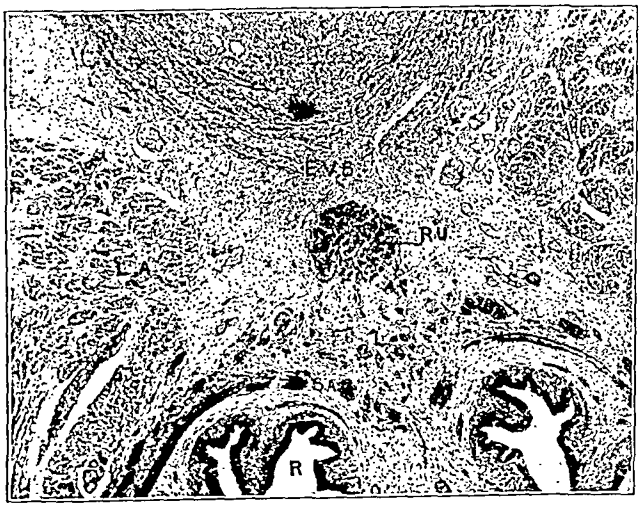

Fig. 8.—Transverse section through pelvis of 130 millimeter embryo, showing recto-urethralis muscle: From the longitudinal layer on the anterior surface of the rectum this bundle of muscle has split off and is shown passing across the rectovesical space; *E V S*, external vesical sphincter; *R U*, recto-urethralis muscle; *L A*, levator ani muscle; *R*, rectum (embryo, Carnegie Institute 1018, slide 168, row 2, section 3); slightly reduced from a photomicrograph × 54.

The source of confusion relative to the layers of perineal fascia may be avoided by a close application to the following brief scheme, based on experimental and embryologic data (*Fig. 3*).

PERINEAL FASCIA

A. *Superficial:*
1. Panniculus adiposus of the skin
2. Colles' fascia→dartos muscle→
→ { (Anteriorly) Scarpa's fascia→fascia lata
(Laterally) superficial fascia of gluteal region
(Posteriorly) circumanal fascia
B. *Deep* (Urogenital Diaphragm):
1. Superficial or proximal layer.
2. Deep or distal layer→ { (Laterally) obturator fascia.
(Posteriorly) endopelvic fascia
or Denonvilliers' fascia.

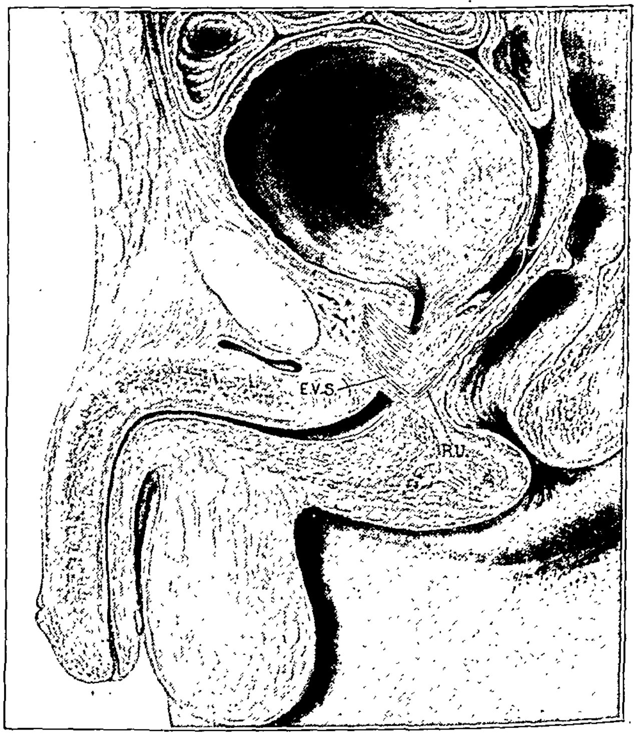

Fig. 9.—Sagittal section of adults pelvis, showing diagrammatically the relation existing between the external vesical sphincter (*E V S*) and the recto-urethralis muscle (*R U*).

In support of this outline and to displace plausible theory by fact, these structures have been investigated from the embryologic point of view.

EMBRYOLOGY

In an 8 weeks embryo (Fig. 4.) there is beginning muscle formation, and the site of the urogenital diaphragm, as indicated by the pudic artery, is merely a mass of undifferentiated mesenchyme cells. In the various stages of development up to the term fetus (Fig. 5) there is still no membrane marking this site, but rather a condensation of loose connective tissue about the membranous urethra. Since the upper limits are not very clearly marked, the division between the prostatic and the membranous urethra may be best defined as the point at which the lowermost prostatic tubules leave off.[10] In the model there is a very large transverse perineal muscle,[11] but there is no proximal layer of the urogenital diaphragm to divide it into deep and superficial layers. Cowper's glands are rather large, and extend well down between the rectum and the levator ani muscle. They are fairly symmetrical, and have short ducts. The levator ani muscle (Fig. 6) supports the prostate laterally; but, contrary to the generally accepted descriptions, it does not lie between the prostate and the rectum (Fig. 7). The recto-urethralis muscle[12] appears as a band arising from the anterior longitudinal layer of the rectum at about the level of the verumontanum (Fig. 8) and, passing forward and downward, fuses below the membranous urethra with the raphé of the external vesical sphincter (Fig. 9). The suspensory ligament (Fig. 10) arises from the linea alba and the periosteum of the pubis. It passes forward as if to bisect the perineum and fuse with the "septum scroti." [13] A dense layer encloses the penis, looser layers pass around the spermatic cords, and still less dense layers radiate outward, forming partitions.

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[9] Derry, D. E.: On the Real Nature of the So-Called "Pelvic Fascia," J. Anat. & Physiol. **42**: 97-106, 1907; Pelvic Muscles and Fascia, ibid., pp. 107-111.

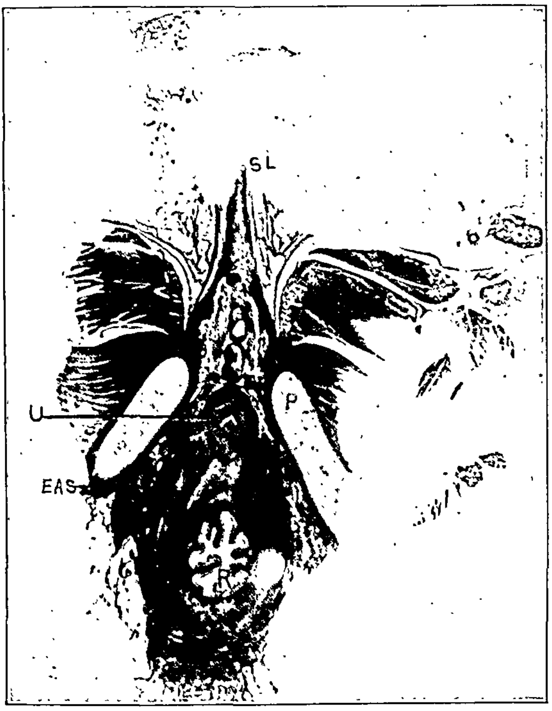

Fig. 10.—Transverse section through pelvis of term fetus, showing origin of suspensory ligament: *P*, pubes; *R*, rectum; *U*, urethra; *E A S*, external anal sphincter; *S L*, suspensory ligament (embryo, Carnegie Institute 2409, slide 147) × 1.5.

Colles' fascia (Fig. 12) does not show as a definite sheath, but as numerous partitions or condensations of connective tissue that pass through the loose cellular tissue of the perineum, scrotum and penis. The inner fibers of the suspensory ligament, reinforced by an aponeurosis from the ischiocavernosus muscles (Fig. 13), form a penile sheath such as described by Buck, while the loose outer fibers join with the dartos to form Colles' fasc [illegible] to the occurrence [illegible]

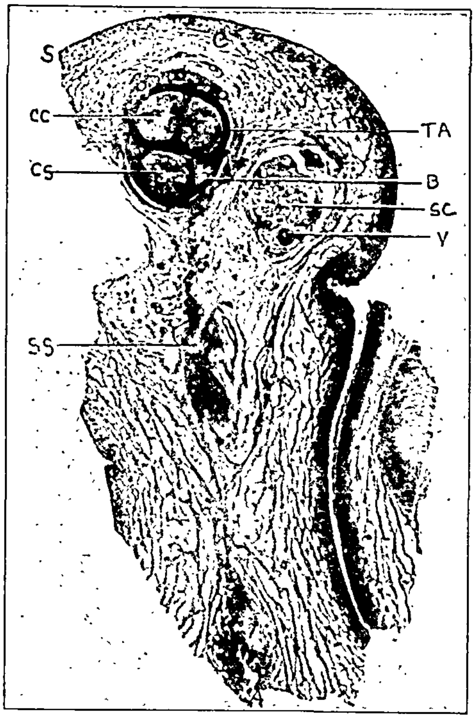

Fig. 11.—Section through perineum of term fetus, showing "septum scroti" and Buck's fascia: *S*, skin; *C C*, corpora cavernosa; *C S*, corpus spongiosum; *T A*, tunica albuginea; *B*, Buck's fascia; *S S*, septum scroti; *S C*, spermatic cord; *V*, vas deferens; *A*, anus; *C*, Colles' fascia (embryo, Carnegie Institute 2409, slide 218) × 1.5.

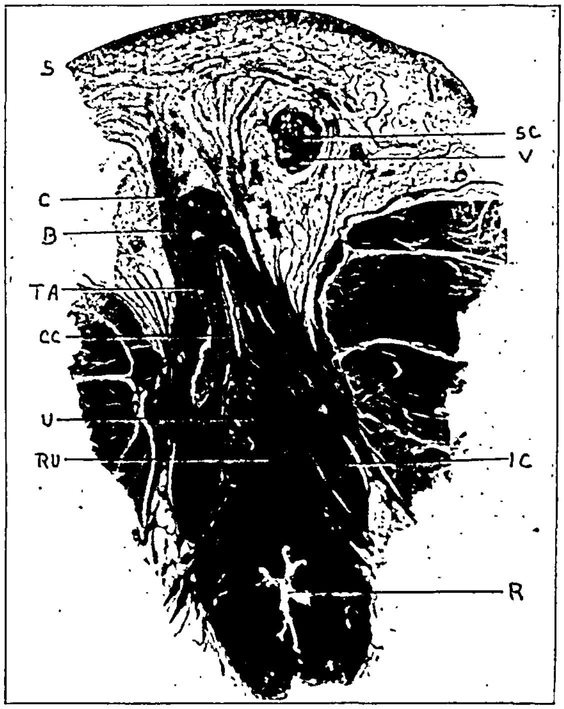

Fig. 12.—Section through pelvis of term fetus, showing Colles' fascia and Buck's fascia: *S*, skin; *C C*, corpora cavernosa; *T A*, [illegible] -ginea; *B*, Buck's fascia; *S C*, sperma[illegible] cord; *V*, vas def[illegible] tum; *U*, urethra; *C*, Colles' [illegible] ischiocavernosus [illegible] recto-urethralis muscle ([illegible] Institute 24[illegible] × 1.5.

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[10] Johnson, F. P.: The Later Development of the Urethra in the Male, J. Urol. 4:447-502 (Dec.) 1920.

[11] Holden, Luther: A Manual of Dissection of the Human Body, Philadelphia, P. Blakiston's Son & Co., 1885, pp. 525-581.

[12] Wesson, M. B.: The Development and Surgical Importance of the Recto-Urethralis Muscle and Denonvillier's Fascia, J. Urol. 8:339-359 (Oct.) 1922.

[13] Felix, W.: The Development of the Urogenital Organs, in Keibel and Mall: Manual of Human Embryology, Philadelphia 2:752-979, 1912.

villiers'[14] fascia on the prostatic side of the rectovesical space, with a loose tissue as a posterior layer on the other side.

Abraham Colles[15] of the Royal College of Surgeons in Ireland, in 1811, described the fascia bearing his name. Like many of the famous beacon lights of surgery, he was interested in urology and noticed that following a rupture or ulceration of the "posterior part of the canal of the urethra," the effusion of urine formed a tumor in the perineum, but did not suppurate there because *of the unyielding nature of the fascia,* and that diffusion laterally toward the thighs was prevented by the close attachment of this fascia to the rami of the pubes and ischium. Hence, it passed into the loose tissue of the scrotum and there suppurated or passed up over the pubes.

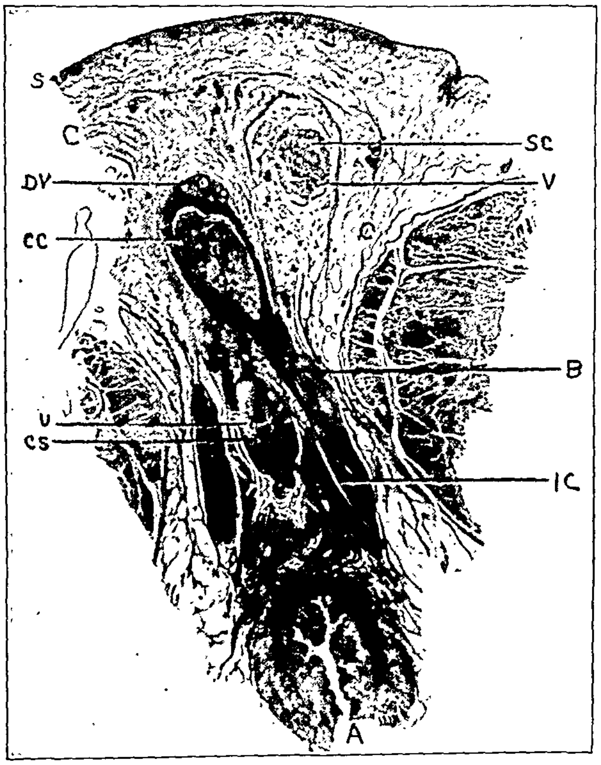

Fig. 13.—Section through pelvis of term fetus, showing relationship between Buck's fascia and sheath of ischiocavernosus muscle: *S,* skin, *C C,* corpora cavernosa; *C S,* corpus spongiosum; *B,* Buck's fascia; *S C,* spermatic cord; *V,* vas deferens; *A,* anus; *C,* Colles' fascia; *I C,* ischiocavernosus muscle; *D V,* dorsal vein of penis; *U,* urethra (embryo, Carnegie Institute 2409, slide 176) × 1.5.

In 1860, Sappey[16] described the dartos of the penis containing smooth muscle fibers, which are continuous with the scrotal dartos.

In 1848, at the first session of the American Medical Association, Gurdon Buck, Jr.,[17] surgeon to the New York Hospital, reported the discovery of a distinct membranous sheath investing the penis. Buck's fascia (Fig. 14) is a continuation of the suspensory ligament above and the perineal fascia below; it is divided into two compartments, one containing the corpora cavernosa, and the other the corpus spongiosum. "The cavity formed by the sheath and occupied by the corpus cavernosum is limited posteriorly by the triangular ligament. It also sends off, from its upper surface, membranous septa between the accelerator muscles in the middle, and the erectors on either side, to join the triangular ligament, and thus forms three distinct and

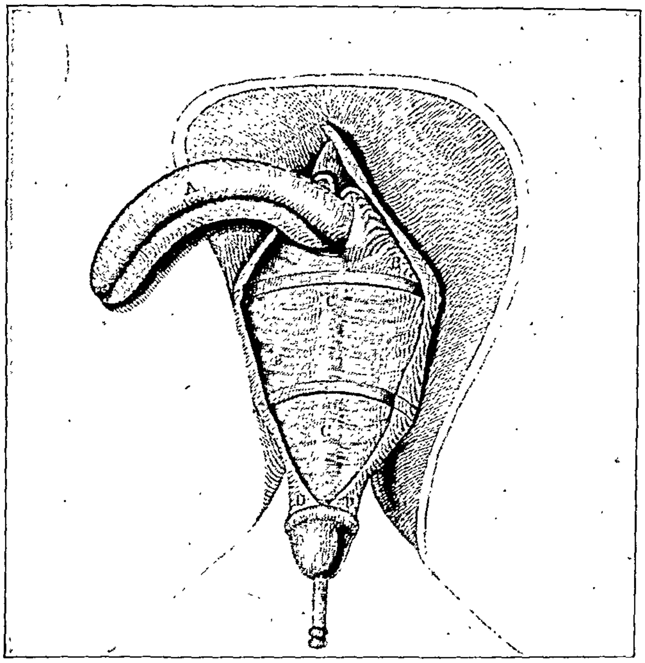

Fig. 14.—Buck's fascia. A dissection of the sheath of the penis, showing: *A,* the corpus cavernosum, enucleated from the sheath; *B,* the sheath, split up through the suspensory ligament, of which it is a continuation; *C, the relations of the sheath to the corpus spongiosum* urethrae, one layer of which passes above, the other below it; *D,* its relation to the glans penis, to which the sheath adheres inseparably by its outer surface, while by its inner surface it caps the corpus cavernosum; *E,* the dorsal arteries, veins and nerves, raised with the sheath (Buck).

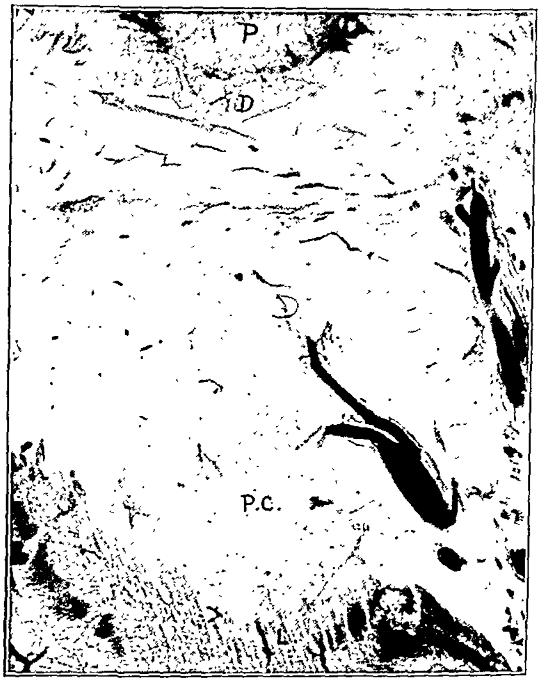

Fig. 15.—Transverse section through the pelvis of 208 millimeter human embryo, showing the most dependent part of the peritoneal cavity; *there is no evidence of raphé formation of the layers* of peritoneum, which ends close against the rectum; anteriorly there is a condensation of mesenchyme tissue with a resulting fascia (Denonvillier's fascia) in contact with the prostate: *PC,* peritoneal cavity; *D,* Denonvillier's fascia; *P,* prostate; *L,* levator ani (embryo, Carnegie Institute 2402, slide 250, section 1); slightly reduced from a photomicrograph × 18.5.

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[14] Denonvilliers, C.: Anatomie du périnée, Bull et mém. Soc. Anat. De Paris **2**: 105-106, 1836.

[15] Colles, Abraham: A Treatise on Surgical Anatomy, Dublin, Gilbert and Hodges, 1811, pp. 151-180.

[16] Sappey, P. C.: Traité d'anatomie, Paris, 1877, Adrien Delhaye **3**: 654, 1877.

[17] Buck, Gurdon, Jr.: A New Feature in the Anatomical Structure of the Genito-Urinary Organs Not Hitherto Described, Tr. American Medical Association **1**: 367-372, 1848.

deep sheaths that are confounded anteriorly with the common sheath investing the corpus cavernosum."

Denonvilliers' fascia is the term applied by urologists to the sheath between the prostate and the rectum. As in the development of the other pelvic and perineal fascia, the anlage space is in the beginning filled with a syncytial mass of embryonic connective tissue cells; eventually differentiation occurs, and there is a condensation of connective tissue, anteriorly and posteriorly, with a potential space between. The anterior layer, covering the prostate, is the thicker, and elastic tissue fibrils predominate, which causes the characteristic shiny appearance of Denonvilliers' fascia (Fig. 15). A sheath of this fascia surrounds the ejaculatory ducts and utricle as they pass through the prostate. At the apex of the prostate, the fascia is continuous with the superior layer of the urogenital triangle.

There is no evidence that Denonvilliers' fascia is formed by the fusion of two layers of fetal peritoneum as described by Cuneo and Veau,[18] but rather it is apparently differentiated from a condensation of mesenchymal tissue occurring subsequent to the formation of the urethra and other definite structures. Furthermore, it is a generally accepted embryologic law that when two layers of peritoneum are permanently approximated, the constituents revert to type, and the mesothelium is absorbed and disappears, leaving only a bed of undifferentiated mesenchyme.

The fasciae of the perineum are of interest to the surgeon because of their influence in controlling the course of urinary extravasations. Buck's study was made seventy-five years ago, in an attempt to explain a "circumscribed, hard, prominent swelling of the size of a Madeira nut, in the anterior part of the scrotum, covering and closely embracing the urethra, and also extended on either side around the root of the penis, in the form of an indurated flattened band."

In order to confirm Buck's description of fascia in figure of eight, enclosing the two cavernosa bodies in one loop and the spongiosum in the other, an intra-urethral injection was made through the dorsum of the urethral canal between the corpora cavernosa. At first a small lump formed; then, by using considerable force, the penis became very rigid. The pressure was increased and held at the maximum for a considerable time. An incision was then made down the dorsum of the penis, as described by Buck, and it was found that the pressure of the fluid had dissected the corpora cavernosa away from the corpus spongiosum, and from the fascia of the penis.

To determine the extent of Colles' fascia anterior to the suspensory ligament, under inspection through an endoscope, the urethra in fresh cadavers was punctured by means of a long needle, and colored fluids were injected so as to simulate a rupture of the urethra. Ventral ruptures of the bulb formed a circumscribed lump in the perineum, but with increased injections the fluid gradually spread, evidently passing between connective tissue partitions. When the force was still further increased, these partitions gave way, and one side of the scrotum became filled. Extending the amount of fluid still further caused the extravasations to rise toward the symphysis; but when its passage in that direction was prevented by means of pressure over the pubic bone, the fluid passed down into the penis between Colles' and Buck's fascia, demonstrating the continuity of Colles' fascia into the penile organ.

Three types of urinary extravasation are commonly encountered: between the layers of Buck's fascia; within the superficial perineal interspace, and distal to the deep layer of the urogenital diaphragm. If the rupture occurs anterior to the urogenital diaphragm and the opening is through the dorsum of the corpus spongiosum, the fluid is confined between the layers of Buck's fascia surrounding the corpus cavernosum. However, the common pathway is ventral and the urine is confined temporarily by Colles' fascia, and because of the dense fascial partitions within the superficial perineal interspace the fluid tends to pass from the perineum down in the scrotum and then up over the pubes. In early stages, the extravasation is unilateral; later, both sides of the scrotum as well as the penis down to the glans are involved, and the fluid may pass up as far as the axilla. If the rupture occurs distal to the urogenital diaphragm, the extravasation is held forward by Denonvilliers' fascia and by dissecting up the peritoneum from the bladder passes into the space of Retzius, or it may extend posteriorly up to the diaphragm and eventually even pass through the inguinal rings and appear on the abdomen.

As evidence that Buck's fascia, Denonvilliers' fascia, and urogenital diaphragm are not the impenetrable bulwarks they are supposed to be I shall cite the following cases in respective order. Colles [15] reported a chancre of the corona that caused infiltration under the penile sheath and opened on the abdomen. Smith [4] found at necropsy a case of tuberculosis of the seminal vesicles that broke through Denonvilliers' fascia, forming a rectal fistula and leaving the bladder wall uninfected. In the clinic of Hugh H. Young, I observed an 84 year old patient with cancer of the prostate who developed a priapism because of the extension of the malignant growth into the corpora cavernosa.

If careful descriptions of the findings of a large number of ruptured urethra operations appeared in the literature, definite conclusions as to the paths followed by extravasated urine could be drawn, and theories could be replaced by facts.

SUMMARY

1. Buck's fascia has a definite given position as described by him, and which is borne out by embryologic studies and by extravasation experiments.
2. Colles' fascia has certain definite extensions anterior to the suspensory ligament, which fact also is demonstrable by embryologic and experimental study.
3. Colles' fascia in the penis bears the same relationship to Buck's fascia that the posterior layer of Denonvilliers' fascia does to the anterior layer.
4. The urogenital diaphragm occurs subsequent to the appearance of the urethra, muscles, blood vessels and pelvic viscera.
5. The pelvic and perineal fascia are made up of mesenchymal extension from the blood vessels and viscera and from the aponeurotic sheaths of the muscles, and are formed from a condensation of primarily loose undifferentiated tissue.
6. Denonvilliers' fascia is formed by a condensation of mesenchyme tissue, and not by a fusion of layers of fetal peritoneum.
7. The urogenital fascia has not the same density early in life that it later acquires, with the assumption of the upright position and the consequent strain put on it.

549 Flood Building.

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[18] Cuneo, B., and Veau, V.: De la signification morphologique des aponeuroses périvésicales, J. Anat. **35**: 235-245, 1899.

ABSTRACT OF DISCUSSION

Dr. E. M. Watson, Buffalo: The formation of the structures in the perineum is extremely important, and Dr. Wesson's work will be of great value, particularly to those who are engaged in teaching. The different entities he has described have always been a little hazy, and as a means of showing the paths of extravasation and separation this paper will help us all immensely.

Dr. B. A. Thomas, Philadelphia: I agree with Dr. Watson. The fundamental work of Dr. Wesson is very illuminating. I have profited much by listening to him, but cannot add anything.

Dr. Homer G. Hamer, Indianapolis: It is certainly quite a help to have these anatomic factors brought out so clearly.

Dr. M. B. Wesson, San Francisco: I wish to emphasize the plea I made in the paper that cases of rupture of the urethra be reported with detailed anatomic descriptions of the planes of extravasation. Not until the literature contains a sufficient number of such accurate portrayals can the vague theories of urinary extravasation be replaced by facts. The medical journals contain many complete case reports on subjects of questionable importance, but absolutely nothing of value has been published along this line.

HEREDITARY HEMOPTYSIS *

EMANUEL LIBMAN, M.D.
AND
REUBEN OTTENBERG, M.D.
NEW YORK

In 1918 we[1] described a family that presented what appeared to be a new form of hereditary hemorrhagic disease distinct from the two already established forms of bleeding tendency, hemophilia and multiple telangiectases. In this family, seven persons presented almost identical histories of repeated profuse hemoptyses beginning about puberty or in early adult life and occurring at intervals throughout life.

We have now kept three bleeders in this family under observation for an additional five years since our first report, (through the courtesy of Dr. S. S. Lubin, their family physician). This makes a total of seven years during which the clinical picture of the condition has been observed and has not changed. We think that this long period of observation is sufficient to exclude tuberculosis.

The first member of the family to be seen by us was admitted to the Mount Sinai hospital in 1916, while suffering from profuse hemoptysis. It developed that he had suffered from similar attacks at intervals for many years. Naturally, he had been repeatedly suspected of being a victim of pulmonary tuberculosis; but proof of such a diagnosis had never been obtained. He had never suffered from any other symptoms except the hemoptysis. Furthermore, on investigation, it was found that six other members of the family (two of whom were subsequently examined by us) gave practically identical histories. There were no cases of tuberculosis in the entire family. Not one of the family was a bleeder in any other sense; that is, none of them bled inordinately from accidental wounds or otherwise than from the lungs.

Careful examination of the blood of the patient admitted to the hospital showed that it lacked the characteristics of hemophilia; the coagulation time was normal. The characteristics of chronic purpura were also absent; the platelet count was within the normal range, and the bleeding time was normal.

The heredity of the disease in this family is not sex-limited. The disease occurs in and is transmitted by females as well as by males. The hemorrhages occur only at or after the age of puberty, the earliest hemorrhage recorded in any individual being at the age of 12 years. None of the hemorrhages have been fatal.

Considering the possibility that the condition might be one of telangiectasis similar to those of multiple hereditary telangiectasis (Osler) but situated in the bronchial tree, we secured the services of Dr. Yankauer, who performed bronchoscopy on two members of the family, with entirely negative results. If the condition is due to telangiectases, they must be localized in the finer bronchi or in the pulmonary tissue.

On the basis of physical examinations of three lung bleeders belonging to the family, as well as of roentgenologic examination of two, and tuberculin tests of one, and on the basis of the clinical fact that none of the seven individuals who suffered from hemorrhages ever developed any of the symptoms of tuberculosis, we believe that tuberculosis can be excluded as the cause of the hemorrhage.

We know of no condition described in the literature similar to the one here reported. The only comparable disease with which we are acquainted is the "idiopathic family hematuria" described by Apert,[2] which has been observed in two families.

REPORT OF CASES

Case 1.—R. W., a man, aged 39, Jewish Russian, jeweler, first examined, Oct. 12, 1916, had been subject to attacks of hemoptysis since the age of 21. The patient's maternal grandmother (1)[3] had attacks of hemoptysis exactly like those of the patient. She lived to be 70 years of age. The patient's mother (2) died at the age of 66, of a sudden heart attack; she had suffered from attacks of hemoptysis every few months for at least ten years, to the patient's knowledge. The patient's mother had one brother and one sister. The mother's brother (3) was 60 years of age and had been subject to attacks of hemoptysis similar to those of the other members of the family for at least twenty-five years, although he had not had any hemorrhages for the last five years. One of his sons began expectorating blood in 1916, when we first became acquainted with the family and is described as Case 3.

The patient had three brothers and two sisters, of whom one brother and one sister were subject to attacks exactly like his own. His brother (4) was 55; his hemoptyses began during adult life, and letters from Russia received in 1922 indicated that he still had occasional hemoptyses, while his five children, ranging from 15 to 25 years of age, were not mentioned as having any hemoptyses. The patient's sister was 30 years old, and had had frequent attacks of hemoptysis since the age of 12. A more detailed account of her is given in the report of Case 2. The patient himself had three children, aged 11, 15 and 18 years, who had so far not suffered from hemoptysis. There had been no case of tuberculosis in the family.

During the first three years of the trouble, the patient had six attacks; then they became somewhat more frequent. In the five years before his admission to the hospital in 1916, he bled only five or six times. He had been repeatedly examined by various physicians, and pronounced not tuberculous. The attacks almost always started when he arose in the morning; he said that he was a mouth breather, and that his throat was very dry when he waked up. On this

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* From the Medical Department, Mount Sinai Hospital.

[1] Contributions to Medical and Biological Research dedicated to Sir William Osler, New York 1: 632, 1919.

[2] Apert: Traité des maladies familiales et des maladies congénitales. Hurst, A. F.: Guy's Hosp. Rep. 73: 368 (July) 1923.

[3] The roman and arabic numerals used refer to the numbers on the accompanying chart.

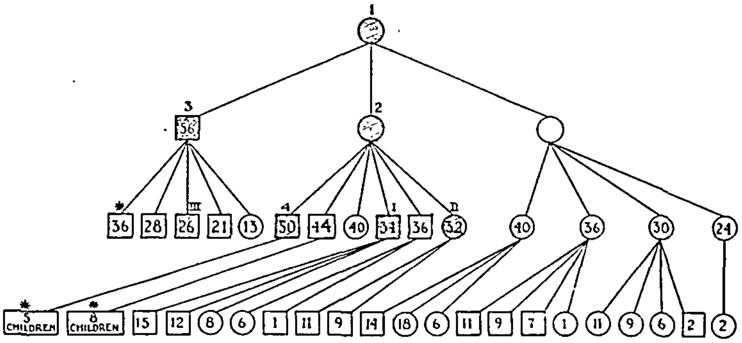
account he usually had to cough very hard every morning. The bleeding came on only after about ten minutes of hard coughing, and he attributed it to the coughing. At the start it was usually slight, but gradually increased. At first the blood was bright red, but by the second or third day it was generally dark. He knew by experience that when black blood appeared there was no more danger of bleeding, and returned to his work. He did not usually call a physician, as he had learned that the bleeding always stopped spontaneously. According to his estimate, he lost about a half pint of blood in an average attack, but sometimes as much as a pint and a half. Except for an attack of malaria, he never had had chills or night sweats.

We watched him from day to day during the severe attack in 1916, which was one of the most prolonged that he had ever had, lasting about fifteen days altogether.

Since then he had continued having more or less profuse hemorrhages at irregular intervals. The last year was one of the worst he had ever gone through, and he had had more than thirty hemorrhages. As a result, he was rather weak, but was still able to go on with his work.

We made repeated physical examinations, all of which were essentially negative so far as any explanation of his hemorrhages was concerned. Repeated careful examinations of the nose and throat and a bronchoscopy by Dr. Yankauer also revealed nothing beyond a chronic catarrhal laryngitis. The blood examination in 1916 showed: hemoglobin, 73 per cent.; erythrocytes, 4,200,000; leukocytes, 12,000. Differential count: polymorphonuclear neutrophils, 77 per cent.; lymphocytes, 22 per cent.; eosinophils, 1 per cent.; platelets, 300,000. The bleeding time was four minutes. The coagulation time (test tube method) was five minutes. The Wassermann reaction was negative. The urine was normal.

During 1916 the patient was kept in bed eleven days and a subcutaneous tuberculin test carried out, with negative result.



Genealogy: Lung bleeders indicated by shading; circles, females; squares, males; *, in Europe, no details obtainable; numbers in squares, ages in 1918; numbers above squares or circles, numerals used in text; roman numerals (I, II, III), subjects examined by us; arabic figures (1, 2, 3, 4), bleeders who were not available for examination. Several minor errors that appeared in our publication of 1918 have been corrected.

Roentgen-ray examinations in 1916 and 1922 showed that the lungs were normal.

Case 2.—E. R., a woman, aged 37, sister of first patient, married, housewife, seen in 1916, had two children, aged 16 and 14, both healthy. Except for hemoptyses, she had never been seriously ill. She stated that for most of her life she had a tendency to "catch cold" and develop a hoarse voice. She coughed up blood for the first time at the age of 12, and did not have another attack until 16. The second hemorrhage occurred shortly after the onset of menstruation at 15. Since then the attacks had come on at irregular intervals, sometimes skipping several years. When they occurred, she usually bled for hours at a time. The attacks seldom lasted more than one day. She always felt a tickling sensation a day or two before an hemoptysis, so that she could almost always foretell it. The blood that was brought up was bright red.

After her first childbirth, in 1907, she was for a time in poor condition; otherwise she had always been stout and vigorous. She had been repeatedly examined by physicians, all of whom suspected tuberculosis. The sputum had been examined repeatedly, with negative results. On the whole, her hemorrhages were mild as compared with those of her brothers R. W. and L. W.

Since we first studied her, she has continued to have several hemorrhages a year. June 6, 1923, she had another hemoptysis lasting three days, the most profuse one she has ever had. She lost certainly more than a pint of blood, and the blood was bright red until it stopped. Physical examinations in 1916, 1918 and 1923 have been identical, and beyond a mild laryngitis have shown nothing abnormal. Likewise roentgen-ray examinations of the chest and blood examinations have been negative. Bronchoscopy by Dr. Yankauer failed to show the source of bleeding.

Case 3.—R. W., a man, aged 40, married, cousin of the first patient, had typhoid fever many years ago, and was suspected of having heart trouble at the time. He had coughed a great deal for the last twelve years, but his general health had been good.

While at work in 1916, he suddenly expectorated blood. The bleeding lasted four days, but was not profuse; he estimated that it amounted to half a glass of blood in the whole time.

In 1919, shortly after his marriage, he had another hemorrhage similar to the first. His general health is good (1923). Complete physical examinations, made in 1916 and 1918, showed only unimportant abnormalities.

SUMMARY

Seven members of a family present identical histories of rather profuse hemoptyses occurring at intervals for years, beginning at puberty or in early adult life and not impairing the general health seriously. We have examined three of these bleeders at intervals over a period of seven years, and feel certain that tuberculosis can be excluded as the cause of the hemorrhages. No abnormalities of the blood and no telangiectases of the upper air passages have been found. The cause of the hemorrhages is entirely unknown.

The disease is apparently hereditary. In the small number of cases here recorded, the condition seems not to skip generations. If this continues to occur in the future generations, it will presumably turn out to be a mendelian dominant; but at present the material is too limited to afford certainty on this point.

15 West Eighty-Ninth Street.

Presence of Striated and Nonstriated Muscle in Auricle Cause of Fibrillation.—The assumption that the auricle contains two kinds of muscle, the one more primitive and the other more highly organized, gives a simple explanation of many clinical facts otherwise difficult to understand. For instance, paroxysmal tachycardia becomes quite easily understood. It should be looked upon as an intermediate stage between the normal rhythm and fibrillation, the auricle responding to a stimulation which normally does not reach it. It also explains why digitalis does not act in cases showing this rhythm, as stimulation of the vagus tends, if anything, to increase the frequency of the fibrillary movement and not to slow it. It has always been difficult to understand why digitalis does not act upon the normal heart even in large doses. If one supposes that the striated muscle, with its nerve the sympathetic, is in some way weakened or poisoned in rheumatism, it is easy to understand how murmurs make their appearance and how digitalis acts. The activity of the smooth muscle is normally completely inhibited, but in rheumatism it is unmasked as it were, and exposed to the influence of drugs like digitalis.—J. M. Gill: *Guy's Hosp. Rep.* **73**:423 (Oct.) 1923.

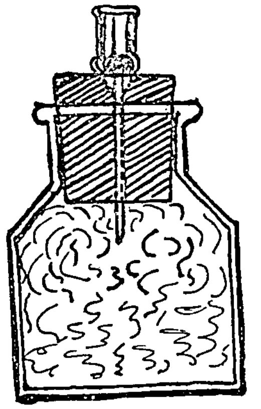
Clinical Notes, Suggestions, and New Instruments

A USE FOR THE DISCARDED HYPODERMIC NEEDLE

Constantine L. A. Odén, M.S., M.D., Muskegon, Mich.

I have found that a hypodermic needle of small caliber is the best instrument with which to obtain blood from the ear or the finger, especially from children; it makes a clean, nearly painless cut and allows ample flow without the wound's closing, as so often happens when many other types of lancet are used.

It can be inserted through a cork and kept in a bottle stuffed with cotton and saturated with alcohol, so that it is always sterile when wanted. The patient sees only the cork, which causes no fear. This is advantageous especially with children. The illustration shows how the needle can be inserted through the cork for sufficient distance to allow penetration of the skin. This can easily be adjusted to suit the occasion.



Needle extending through cork into cotton saturated with alcohol.

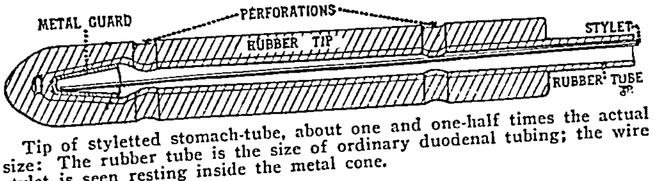
113 West Western Avenue.

A STYLETTED STOMACH-TUBE *

Tracy Jackson Putnam, M.D., Boston

The use of a styletted duodenal tube has been suggested by Jutte[1] and by Bondi and Eisler.[2] According to Eisler's technic, a brass wire is introduced into an ordinary duodenal tube, previously oiled. Stiffened by the wire, the olive of the tube is pushed past the cardia, and guided to the antrum by palpation under the fluoroscope. This often saves many minutes in patients who find it difficult to swallow the ordinary tube, but in our experience, the time-consuming part of a duodenal intubation is persuading the olive to pass the pylorus where the wire is of little assistance.

Gastric intubation is still a much more common and useful procedure than duodenal intubation. The ordinary duodenal tube is often employed instead of the large Nélaton stomach-tube because it is less unpleasant to take; it cannot, however, be used with unconscious or uncooperative patients. A type of styletted stomach tube has been in use for more than a year on the East Surgical Service, which has proved easy to pass and less disturbing to most patients than either of the standard models. It has been used for gastric analyses, stomach washes and gavages, and has been of particular value for very ill patients after operation with distention of the stomach or persistent vomiting. It consists of a piece of duodenal tubing 4 mm. in diameter and 70 cm. long. A cone-shaped metal tip, closed at the bottom, about 7 mm. in length and small enough to fit snugly inside the rubber tube, is tied and cemented within its lower end. A bullet-shaped rubber tip, about 7 mm. in diameter and 5 cm. in length, is cemented or vulcanized outside the rubber tubing, and is pierced by four perforations the size of its bore. It is thus much smaller and softer than the usual form of tip, but will admit any particles small enough to traverse the tube. The upper end of the tube has a bell-shaped expansion to fit a syringe, or is cemented to a short piece of larger tubing. The whole tube is filled with liquid petrolatum and a stiff brass wire, gage 22, about 0.8 mm. in diameter, is fitted into it, the end of the wire resting inside the little metal cup. The tube is kept slightly on a stretch over the stylet by a spring clip, fashioned out of the same wire at its upper end. If the tube is then pushed past the cardia still under tension, the wire cannot slip out of the metal cup; if the rubber tip is of the correct proportions, the wire cannot be made to protrude through any of the perforations, even if it is loose within the tube. When the stomach is reached, the clip is undone, and the wire at once withdrawn. This may be difficult unless the tube is thoroughly oiled and the wire is clean and straight; it should never be put away inside the tube. Fluids may be introduced or withdrawn with a syringe, or larger amounts allowed to flow in by gravity from a reservoir, or aspirated into a suction bottle without any particular discomfort to the patient.



Tip of styletted stomach-tube, about one and one-half times the actual size: The rubber tube is the size of ordinary duodenal tubing; the wire stylet is seen resting inside the metal cone.

The tube may be made at home without great difficulty, or may be obtained from the F. H. Thomas Company, Boston. Ordinary Dakin's tubing is a good size for the tip, and a rounded end may be made out of rubber tire putty.

108 Marlboro Street.

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* From the East Surgical Service, Massachusetts General Hospital.

[1] Jutte, cited by Weilbauer: Deutsch. med. Wchnschr., Oct. 6, 1922.

[2] Bondi, S., and Eisler, F.: München. med. Wchnschr. **69**: 1573 (Nov. 10) 1922.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

IODOSTARINE-ROCHE.—Diiodotariric acid.—$C_{18}H_{32}I_2O_2$.—An iodine addition product of tariric acid, $C_{18}H_{32}O_2$, derived from the fruit of a species of *Picramnia*. Iodostarine contains 47.5 per cent. of iodine.

Actions and Uses.—Iodostarine acts in the system similarly to the inorganic iodides. It is not broken up in the stomach, but a portion of the iodine is split off when it enters the intestine. The undecomposed portion is readily absorbed and, as in the case of other fats, is largely deposited in the tissues where it is slowly split up. The action of iodostarine is exerted more slowly than that of the inorganic iodides (see Iodine Compounds, Iodized Fats and Fatty Acids, New and Nonofficial Remedies, 1923, p. 151).

Dosage.—The same as that of potassium iodide. Supplied in the form of tablets only.

Manufactured by F. Hoffmann-LaRoche & Co., Baslé, Switzerland (Hoffmann-LaRoche Chemical Works, New York). U. S. patent 982,656 (Jan. 24, 1911; expires 1928). U. S. trademark 87,996.

Tablets Iodostarine-Roche 0.25 Gm.

Chocolate Tablets Iodostarine-Roche: Each contains iodostarine equivalent to iodine 0.01 Gm.

Iodostarine is a white, crystalline solid, odorless and tasteless. It is insoluble in water; slightly soluble in cold alcohol; soluble in warm alcohol, ether, chloroform, benzene and carbon disulphide. It is permanent in the air. It melts at 48 to 49 C.: at a higher temperature it decomposes with evolution of iodine.

To about 1 Gm. of iodostarine, accurately weighed, add 50 Cc. of half-normal potassium hydroxide in methyl alcohol. Heat for two hours under a reflux condenser. Remove the condenser, boil off the alcohol, taking care to avoid loss by bumping, and transfer the residue to a separator, using at first warm water, but finally a little diluted nitric acid to insure complete transfer of the iodide to the separator. Cool, add 50 Cc. of ether and sufficient diluted nitric acid to decompose the soap. If the solution becomes yellow from liberation of iodine add a little sodium sulphite to reduce the iodine. Shake thoroughly and draw off the acid layer through a wetted filter into a 500 cubic centimeter flask. Wash the ether in the separator with three separate portions of water of 25 Cc. each, adding these through the filter to the acid solution in the flask, warm to expel dissolved ether, cool, and add 5 Cc. of concentrated nitric acid and, at once, 25 Cc. of tenth-normal silver nitrate. Titrate the excess of silver with tenth-normal potassium sulphocyanate, using ferric ammonium sulphate as indicator. The volume of tenth-normal silver nitrate used indicates not less than 47.5 per cent. of iodine.

Special Article

REPORT OF COMMITTEE ON LYE LEGISLATION TO THE SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Last year your committee submitted a report of a survey of the situation as to legislation providing for the labeling conspicuously with the word "poison" all retail packages of caustic alkalis on which survey a campaign for such legislation was to be based.

We beg now to report that such a campaign was planned and carried out in Pennsylvania in support of House Bill No. 395, a copy of which is hereto attached. This bill was introduced by Dr. Benjamin Patterson, was passed by both branches of the legislature, was signed by Governor Pinchot, and has therefore become a law.

Your committee acknowledges with gratitude the utmost courtesy and open-mindedness with which its communications were received and considered by Governor Pinchot and by the members of the legislature. The work of Hon. Benjamin Patterson is deserving of the highest commendation. Thanks for wise counsel and earnest support are due to Dr. George H. Simmons, Hon. William Potter, Dr. Fred L. Van Sickle, Dr. W. B. Chamberlain, Dr. G. A. Knowles, Dr. David A. Riesman, Dr. Martha Tracy, Dr. William C. Woodward, Dr. W. W. Keen, Dr. Ellen J. Patterson, Dr. A. M. Carr, Dr. Ross V. Patterson, Dr. George H. Meeker, Dr. William Pepper, Dr. W. O. Pearson, Dr. R. R. Huggins, Dr. Gabriel Tucker, Dr. Louis H. Clerf and to the members of the legislative committee of every County Medical Society in the state of Pennsylvania. The support of the medical profession was unanimous. The support and cooperation of the American Child Health Association is gratefully acknowledged.

Your committee acknowledges with thanks the development, by Dr. L. W. Dean, of a very important point in the economics of the lye matter, namely, the annual cost to the state of the hospitalization of children poisoned with lye.

Your committee is deeply indebted to Dr. William C. Woodward, Executive Secretary, Bureau of Legal Medicine, American Medical Association, for writing to lye manufacturers to ascertain what they might be willing to do in the matter of labeling their preparations. Dr. Woodward reports as follows:

> I have found the manufacturers of caustic acid and alkali preparations unresponsive, except one, who pretends to believe that there is no more need for legislation safeguarding the distribution of concentrated lye for household use than for legislation safeguarding the distribution of window glass or of a certain brand of condensed soups. One might cut one's hand in opening a can containing such soup, says my correspondent—and, therefore, a danger label is as much needed on a can of soup as on a can of lye.

The only comment necessary is to say that the same logic might be applied to mercuric chlorid antiseptic tablets. A person might cut himself by breaking the bottle; hence there is no more necessity of labeling it "Poison" than of so labeling a can of soup! As Dr. Woodward was very careful to point out, this individual's opinion is not to be taken as a criterion of the opinion of all packers, some of whom have voluntarily and properly labeled their packages. It proves conclusively, however, that there are and always will be individuals that cannot be convinced and that cannot be controlled except by legislative enactment.

Since the passage of the Pennsylvania law, your committee has been informed that one group of lye packers has received a report from one of its committees recommending certain improvements in the labeling of lye by the packers in that group. Such action is, of course, highly to be commended, and efforts to get commercial interests to label their products properly should be continued. But, in the opinion of your committee, such action does not lessen the necessity for legislation for the following reasons:

1. Associations of packers have no power to compel specified action by the affiliated concerns. The recommendations of the group referred to contain statements such as these:

"A specified size of type is impractical."

"to print in red ink, *if practical*."

"as plainly and conspicuously *as circumstances permit* in each instance."

All of which means that each packer in the group can do as he pleases "in each instance."

2. No commercial interest or association of interests can prevent the starting of new independent interests or control independent interests, new or old. Trade in lye can never be monopolized. Anybody can, at any time, on small capital, start packing a new brand of lye and label it as he pleases.

3. There are and always will be individual packers, like the packer quoted by Dr. Woodward, who are unconvinced of the necessity of labeling packages of lye with the word poison. Nothing but legislation will reach the unconvinced or unfair competitor.

4. There is no reason why the labeling of corrosive poisons sold by *lye packers* should be left to the option of the seller, when the *druggist* is compelled by law to attach a poison label to corrosive poison *he* sells. Such an argument would imply that the druggist is less trustworthy than the lye packer.

5. In all matters of public health, legal enactment comes first. With this solid backing, commercial cooperation and public education are developed rapidly. This, in the opinion of your committee, is the proper course to pursue in the lye matter.

6. Dr. H. M. Taylor of Jacksonville, Fla., reports that, as a result of his presenting the clinical and other facts in evidence of the necessity for protective legislation, the legislature of Florida promptly, by an almost unanimous vote, passed a bill modeled after the Pennsylvania statute, providing for proper labeling of lye. The prompt action by the legislators and governors of Pennsylvania and Florida show the unanimity of legislatively trained minds as to the necessity of legislation, just as soon as the facts in the case were brought to their attention.

7. To obtain any far-reaching results in the way of voluntary labeling would require the maintenance, forever, of an active committee on lye legislation to agitate and to police, in perpetuity, the whole United States to find, from time to time, improperly labeled packages, and to convince successive crops of new concerns, by agitation and by threat of legislation, of the necessity of proper labeling. This alternative to legislation would involve so stupendous a task, and its ultimate results seem so doubtful, that your committee regards it as unworthy of consideration.

RECOMMENDATIONS

1. Your committee recommends that an active campaign be promptly instituted in every state in the Union to obtain both federal and state legislation to protect the children from lye by conspicuous labeling with the word "Poison" in capital letters of not less than 24-point size; two readily obtained antidotes being specified in addition. These are very moderate requirements, to which no right-minded commercial interest could have the slightest objection; and they would be, in the opinion of your committee, a sufficient protection to the public.

2. Your committee begs to recommend that:

(*a*) Its membership be increased by the appointment by the chairman of the section, of sixteen additional members to be selected from as wide a geographic distribution as possible.

(*b*) That the chairman be empowered to select from [illegible] members so appointed, such subcommittees as may [illegible] him desirable, and also to select an executive com[illegible] full power to act for the whole Committee.

Respectfully submitted,

C[illegible]
G[illegible]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 15, 1923

THAT ORANGE-COLORED SLIP

The month has rolled around again in which there is slipped into the magazines a notice which usually reads something like this: "Your subscription expires with this number. Please remit." The Journal likes to be up to date, in fashion; it also believes in economy. So, three or four years ago, it too adopted the plan of inserting a subscription blank. To be strictly honest, the real reason was to save addressing between sixty and seventy thousand envelops, printing the necessary slips to go in them, and then paying Uncle Sam two cents to deliver them. It is so easy to slip a slip into The Journal. That slip will be found in this issue of The Journal. It is orange colored, but the color means nothing. The slip is rather small, and may be stuck deep in the pages, in which case it may not be seen. Look for it.

Incidentally, a subscription for *Hygeia* would be a good thing to include in making out the check. Some physicians may think it worth while to send a copy to a patient or friend as a Christmas gift.

DISEASE AS AN AFTERMATH OF WAR

When the war trumpets blow, the peoples must dance. No place so remote, no family so isolated that it may not be affected by a conflict seemingly as outside its sphere of interest as the planet Saturn. War, famine and pestilence ride together as well chosen comrades. Disease is a consequence of modern war as direct and inevitable as bullet wounds.

While it is not possible to predicate in every instance that this or that case of disease would not have occurred but for the war, the general influence of war on the mass phenomena of disease is constantly becoming clearer. There are infections that are contracted in larger proportion among the men in army camps than they would have been among the same men in civilian life. These diseases are spread by the returning soldier, and may reach out in widening circles to the remotest corners of the earth. After the Civil War in this country, typhoid became more prevalent throughout the Northern states, and, if it were possible to trace the exact genealogy of typhoid cases occurring at the present day, we should doubtless find that some typhoid in 1923 owes its origin to typhoid carriers who were themselves infected in an epidemic that resulted from the spread of typhoid which followed the Civil War. If this seems fanciful, one has only to remember the enormous improvement in the typhoid situation caused by breaking the chain of infection at some one point. The antityphoid inoculation of American soldiers in the Great War protected not only the men themselves, but also the uninoculated civilians. For the first time since typhoid was recognized as a distinct disease, a great war has not been followed by a marked increase of typhoid in the nonfighting population. In reckoning the advantages of antityphoid inoculation, this achievement must not be overlooked.

Smallpox is another disease in which a wide dissemination often occurs either during or following a war. The great extension of smallpox in Germany after the war of 1870 is a familiar example. Epidemic meningitis also, which is liable to be excessively prevalent in army camps, showed a marked increase among persons in civilian life in certain localities in this country in 1917-1918. Whether the dissemination of influenza was affected by the war other than through a somewhat more rapid and irregular dispersion than would have taken place in normal times has been a matter of dispute. Nutritional conditions do not seem to have had as much relation to the spread of influenza as sometimes assumed, and it is perhaps doubtful whether the virulence of the 1918-1919 pandemic was in any way connected with the war. The high mortality of measles in some of the army camps does not seem to have affected the death rate from this disease in the surrounding population.

Another type of disturbance of normal disease relations caused by war is the extension of certain more or less localized infections into regions previously exempt. London papers have recently dwelt on the introduction of "tropical malaria" (due to *Plasmodium falciparum*) into South Russia. This infection, brought back by famine refugees, returning from Turkestan, to the Volga Valley and from the Caucasus to South Russia and the Ukraine is said to be altering the whole character of the population. "From a healthy country, inhabited by a virile, energetic peasant and Cossack population, South Russia is changing to a highly malarial center with a corresponding physical degeneration." It is stated that anopheles mosquitoes breed freely in the tightly sealed, overheated peasants' houses in winter, and that the incidence of malaria is very high even in the colder months of the year. The outlook is pictured by certain writers for the press as extremely gloomy. Whatever may be the truth about this particular situation, there can be no doubt that the introduction of new parasites or of their insect hosts into a previously uninfected region is a possibility that must be reckoned with as an aftermath of war. Other diseases besides malaria obtain a wider distribution in this way. The parasites of amebic dysentery are probably dispersed over a wider area of the earth's surface than ever before. Infectious jaundice, as recently pointed out by Blumer,[1] has usually appeared in this country wherever troops have been concentrated; the disease has apparently increased of late, and in 1920-1922 more than 200 epidemics occurred in New York State alone.

In some instances, the precise share of the Great War in spreading infectious disease may be difficult to trace; but enough is known to make it believable that a wide dispersal of infection is favored by the aggregation of masses of men in camps, by abnormal nutritional conditions, and by the dislocation of social and industrial relations that must follow an armed conflict. Disease knows no boundary of nationality. A tariff does not keep out disease germs. No section of the human race is sufficient unto itself.

THE ETIOLOGY OF NEPHRITIS

With the growing victory over communicable diseases and the decrease in mortality from such causes, there has come a belief that the chronic or regressive class of diseases—those involving the circulatory system and the kidneys and affecting chiefly persons in middle life and old age—has increased in prominence. Nephritis belongs in the latter group. Always a serious menace, the disease, or the category of maladies which the designation represents, has baffled the attempts to gain a clear insight into its etiology. He would be rash, indeed, who ventured to assert that even the fundamental causative features have been established beyond conjecture. Yet in the United States alone tens of thousands of deaths officially charged to nephritis challenge investigation and critical contemplation of the large mass of data accumulated since Richard Bright set apart the nonsuppurative affection of the kidney as a clinical entity.

The complicity of bacteria in the genesis of acute nephritis is generally admitted. Even without overstressing the much discussed relationship of focal infections to nephritis, one must admit that microorganisms can play a damaging part in connection with the kidneys. It matters not for the moment whether streptococci alone are the guilty offenders or whether a diversity of other members of the bacterial family—staphylococci, pneumococci, the bacilli of diphtheria and tuberculosis, for example—are ever inimical. Bacterial injury to the kidney is an acknowledged factor to be reckoned with, and the most defensible presumption is that the bacteria act through poisons which they elaborate rather than by their physical lodgment and multiplication in the renal tissue. With respect to cases of so-called subacute nephritis, however, Newburgh[2] has warned against hasty generalizations. It is not sufficient, he reminds us, to demonstrate the presence of foci of infection in nephritis, for this no more proves that the nephritis owes its origin to the infection than it does that the infection is a complication of nephritis.

With respect to the causation of chronic nephritis, Newburgh[2] has well summarized the two outstanding convictions. They are, he says, that some contracted kidneys are the end stage of an acute or subacute nephritis of bacterial origin, and that nearly all of the remaining cases are intimately related to arteriosclerosis and cannot be properly understood unless the two processes, the sclerosis of the vessels and the sclerosis of the kidneys, are studied together. Newburgh's own experimental investigations both on animals and on man have led him to assume that indulgence in high protein diets will quickly give evidence of renal injury.[3] He believes that man has not yet developed kidneys which can excrete, without suffering injury, the products of a protein ingestion little if any higher than that indulged in by great masses of humanity. If it should prove to be true that the long continued "abuse of protein" makes of the renal apparatus a "locus minoris resistentiae," as Newburgh suggests, it could more readily be understood that such a weakness would greatly increase the likelihood of further damage by infection. Chronic nephritis is comparatively rare among inhabitants of the tropics, yet is common in the temperate zones. It is well known that Europeans and North Americans have been accustomed to consume more protein in the form of animal food than do the native tropical races. Hence, Newburgh asks, may not the excessive protein metabolism of Northern peoples be partly or even largely responsible for the high incidence of chronic nephritis among them? It is a bold venture to assert that chronic nephritis is, generally speaking, caused by the combined effects of infection and abuse of protein. Such a thesis involving factors that are remediable demands respectful consideration. Can it be substantiated?

THE COCKROACH AND CHOLERA

Some of our familiar insect neighbors have acquired an unenviable reputation as trouble makers for the human family since the science of medical entomology was born in 1878. Manson's epoch-making discovery in that year of the rôle of the mosquito in the development of filarial worms paved the way for the discovery by Theobald Smith in 1893 of the transmission of Texas fever by the cattle tick, and by Ross in [illegible] of the relation between mosquitoes and malaria. Since then the tick and the flea have been [illegible] responsibility for a variety of infectious maladies [illegible] the fly has been swatted as though it represented the worst of the enemies to human welfare. Despite the terms of familiarity on which they sometimes live amid our habitations, the bedbug and the cockroach somehow have managed to escape equally severe condemnation from the student of disease. It must be admitted, of course, that the bedbug has had to face numerous accusations of complicity, notably in relation to relapsing fever, kala-azar and oriental sore; but somehow it has managed in most cases to prove an alibi or secure disagreement. Chandler[1] has ventured to explain why the evidence brought forth in support of those insects being the normal transmitters of the diseases in question rests on insecure foundations. Ordinarily bugs, he remarks, are handicapped in the extent to which they are able to spread disease by their nonmigratory habits. Unlike many parasites, they are not usually carried about by human beings, but remain permanently in places occupied by their hosts. It is obvious, therefore, Chandler concludes, that bugs are limited in the spreading of disease to the occupants of the infested place.

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[1] Blumer, George: J. A. M. A. [illegible]

[2] Newburgh, L. H.: [illegible]

[3] [illegible]

The ubiquitous cockroach has been even more successful in escaping the detractor's snare. Now and then it has been accused of some minor offense, such as acting as an intermediate host for certain tapeworms, notably *Davainea madagascariensis*, and the roundworm *Moniliformis moniliformis*. Several years ago, while studying in the Philippines, Barber[2] found that cockroaches feeding on the feces of cholera patients may harbor the cholera vibrios in the insect intestine and discharge them on food for human consumption. The menace of a supposedly water-borne infection thus appeared to be aggravated in an unexpected manner. More recently, Toda[3] has concluded from his investigations at the Lister Institute in London that in a proportion of cockroaches which have consumed food contaminated with *V. cholerae*, the mechanism by which ingested vibrios are rapidly destroyed in the interior of the insect may fail. In such cases the feces may contain viable vibrios for periods of twenty-four, forty-eight or even seventy-two hours after the infective feed. On the whole, however, the conditions in the interior of the cockroach would appear to be as unfavorable to any prolonged sojourn of the vibrio as those in the interior of the housefly when similarly infested. The exact nature of the mechanism whereby delicate organisms such as *B. typhosus* or *V. cholerae* are destroyed in the interior of insects is not fully known, though there is considerable evidence that their survival is influenced by the presence of other bacterial species fully established in the insect hosts.

Toda ventures the opinion that the epidemiologic importance of cockroaches as a possible vector of cholera vibrios under conditions existing on shipboard or elsewhere cannot be overlooked, though the evidence incriminating these insects is purely of an experimental kind. The possible danger seems to apply in particular to vessels in which the cockroach has become the object of suspicion. At the present moment there is some uncertainty as to whether *Periplaneta americana*, *Blatta germanica* or *P. orientalis* is the prevalent traveler. Let us trust that international jealousies with respect to these species will not interfere with the precautionary measures that may be deemed essential.

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[1] Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922, p. [illegible].

[2] Barber, M. A.: Cockroaches and Ants as Carriers of the Vibrios of Asiatic Cholera, Philippine J. Sc. **9:** 1, 1914.

[3] Toda, T.: Cholera and the Ship "Cockroach," J. Hyg. **21:** 359 (Aug.) 1923.

Current Comment

SICKLE CELL ANEMIA

The only cases of sickle cell anemia recorded in available indexes previous to 1923 were Herrick's,[1] in 1910; Washburn's,[2] in 1911; Cook and Myer's,[3] in 1915, and Mason's,[4] in 1922. The condition was considered to be rare and was imperfectly understood. Herrick made no definite diagnosis of the first case, and drew no conclusions; other writers suggested that it was possibly a clinical entity. Emmel, experimenting on the blood of one of these patients, suggested that the peculiar transformation of cells was partly due to an abnormal activity of factors which, in normal hematogenesis, transform round red blood cells into biconcave disks. A recent report of fourteen new cases by Huck[5] seems to lead to a better understanding of sickle cell anemia. It is, he says, an hereditary disease transmitted by and occurring in males and females with equal frequency, in which the red blood cells acquire a characteristic sickle or crescent shape in vitro, and which is characterized by typical symptoms, especially anemia and ulcers on the legs. In mild cases, patients may live normal lives; but the disease has never been cured. In severe cases, those affected are unable to work and seldom live beyond 30 years of age. There are weakness, fever and pain. The course is a series of relapses and remissions. The diagnosis is established by an examination of the blood, although clinical symptoms *may suggest the cause. In several cases in which* fresh blood preparations were examined immediately, there was little change in the red blood cells; but when the specimen was sealed and allowed to stand from six to twenty-four hours, from 25 to 100 per cent. of the cells became sickle shaped. After from three days to six weeks' standing, these cells may again assume the spherical form. Long, threadlike projections extended from almost all of the sickle shaped cells after twenty-four hours. The coagulation time in these patients is normal; hemoglobin varies between 30 and 63 per cent., and there is a moderate polychromatophilia. Nucleated red cells of all kinds are present, with normoblasts most common. The white cells number from 10,000 to 20,000, and the differential count is not characteristic. Red cells are occasionally seen being engulfed by cells of the large mononuclear type, and it is possible that this phagocytosis has something to do in causing the anemia. The blood platelets are increased to between 300,000 and 500,000. Experiments proved that the serum in these cases has no effect on normal red cells, and that the sickling is an inherent property of the cells. The usual clinical features of anemia may be present, and a slight trauma on the leg may be sufficient to cause ulceration. Attempts to transmit this disease to animals have not been successful. Six other cases, making twenty in all, have been diagnosed but not yet reported. At first thought a manifestation of syphilis or tuberculosis, it was plainly shown to be familial and transmitted according to the mendelian law. All the cases reported have been in negroes, and the disease is evidently more common than was formerly supposed.

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[1] Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Arch. Int. Med. **6:** 517 (Nov.) 1910.

[2] Washburn, R. C.: Virginia M. Semimonth. **15:** 490, 1911.

[3] Cook, J. E., and Myer, Jerome: Severe Anemia with Remarkable Elongated and Sickle-Shaped Red Blood Cells and Chronic Leg Ulcer, Arch. Int. Med. **16:** 644 (Oct.) 1915.

[4] Mason, V. R.: Sickle Cell Anemia, J. A. M. A. **79:** 1318 (Oct. 14) 1922.

[5] Huck, J. G.: Sickle Cell Anemia, Bull. Johns Hopkins Hosp. **34:** 335 (Oct.) 1923.

THE DIFFUSION OF MEDICAL KNOWLEDGE

Some years ago, an eminent American scientist remarked that his conception of an investigator's heaven was that of a place where experiments could be conducted without serious interruption from day to day, and where it would never become necessary to embody the results in the form of detailed reports. To many students who derive real joy from the work of careful observation, the duty of presenting the outcome in some formal manuscript for publication is unquestionably irksome. Many an important clinical experience has doubtless failed to be placed on record in permanent form because of the inertia of some physician for whom the scalpel has become mightier than the pen. President Vincent of the Rockefeller Foundation has done a real service in pointing out that the rapid contemporary progress in medical research and practical procedures is due to the prompt interchange of information that is recorded in the copious literature of today in many departments of modern scientific medicine. The exchange of ideas is not confined within national boundaries. Obviously, as Vincent[1] specifically points out, international cooperation in creating medical science depends on communication of ideas from worker to worker and from country to country. We are reminded that Hippocrates, Celsus and Galen produced a body of medical literature. Arab authors transmitted it to western Europe. Nor is the intercourse between leaders of science without great value. Medical students from many nations used to resort to the famous schools of Italy, France and Holland. In the nineteenth century the rapid progress of German medicine drew physicians and advanced students from abroad to many German and Austrian universities and clinics. Berlin, Vienna, Paris and London each attracted representatives from parts of the world where medicine was less advanced—southern Europe, Central and South America, the United States, Japan and the British dominions. The formation of international scientific associations has helped to create a sense of solidarity among medical scientists. Since 1867, seventeen international medical congresses have been held in the chief capitals of Europe, and one in Washington. Philanthropists, by granting fellowships for study outside the holders' own countries, by inviting commissions from foreign nations to visit the United States and other countries, and by enabling the health organization of the League of Nations to finance the intermigration of health officers, are helping medical scientists and practitioners of all nations to work together more effectively.

REPORT OF THE INDIAN SERVICE

The Board of Indian Commissioners has just issued its fifty-fourth annual report to the Secretary of the Interior. It defines what is apparently the government's policy toward the Indian, and toward the progress of education. A special section is concerned with the health and sanitation of the government's Indian wards. In different sections of the report, it is pointed out that for many years the commissioners have tolerated the insufficiency of the Indian Medical Service. The attention of Congress has frequently been called to the paltry salaries of the physicians and to their unattractive living and working conditions. In 1911, only $40,000 was appropriated for health work among the Indians; in 1922, this had been increased to $370,000. In 1913, the death rate was 32.24 per thousand, whereas in 1920 it was 22.33 per thousand. On the other hand, the death rate for the whole country was 13.8 per thousand. The Indian service maintains eighty-five hospitals and tuberculosis sanatoriums. Every year more and more Indians have been seeking hospital treatment, and it is emphasized that a faithful, capable physician, entirely aside from his professional value, is one of the most effective agencies in advancing Indian people on the road of progress. On June 30, 1923, there were 161 physicians, six dentists and three specialists in eye diseases in the Indian Medical Service, of whom fifty-six were contract physicians on part time. The contract service is not satisfactory, and it is the opinion of the commissioners that efforts should be made to reduce the number of such contracts to the minimum. The contract physicians naturally care for their own patients first, and the Indian patients receive attention later. The average salary of a physician in the Indian Service is around $1,200 a year. "Every commissioner of Indian affairs" says the report, "for the past quarter of a century, has urged Congress to raise the salaries of the men and women who look after the health of the Indian wards of the government. But their pleas have been futile." Here, in brief, are the medical aspects of the Indian problem. It is obvious that any physician who holds a position in the service is sacrificing himself for the good of a cause, and that the government cannot expect to receive the best quality of medical service for the money it is willing to pay. There must in[illegible]ly be [illegible]er such circumstances, a shortage, r[illegible] t[illegible]er of physicians, but also in the [illegible]d.

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[1] Vincent, G. E.: The Rockefeller Foundation, A Review for 1922, New York, 1923.

Association News

DATE OF ANNUAL SESSION

Place: Municipal Pier—Time: June 9-13, 1924

The date of the next annual session in Chicago was fixed tentatively as May 19-23, 1924. Later arrangements were made to hold all of the sessions as well as the various exhibits on the Municipal Pier. However, an investigation showed that the temperature during the third week of May for the last five years—except 1921—has been too cool to insure comfort in an unheated building such as the Municipal Pier. It was impossible to select a date during June, because of the uncertainty as to the time of the Republican National Convention, which it seemed likely would be held in Chicago. Now, that it has been definitely announced that the Republican National Convention will be held elsewhere, the Board of Trustees has fixed the date as above stated.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Board of Health Substations.—Nineteen laboratory substations were established in Jefferson County, December 8, by Dr. J. D. Dowling, health officer. These will be known as board of health substations. The majority are located in drug stores.

CALIFORNIA

Professor Millikan Receives Hughes Medal.—Robert A. Millikan, Ph.D., of the California Institute of Technology, Pasadena, recent winner of the Nobel prize for physics, has been awarded the Hughes medal by the Royal Society of London, England.

CONNECTICUT

School of Pharmacy Investigation.—The scope of the grand jury inquiry into fake medical diplomas was widened to include pharmacists when State's Attorney Alcorn announced, December 1, that he is investigating the Connecticut School of Pharmacy at New Haven which advertises, it is alleged, to give a six months' course for $50, which will fit the student for examination by the state board of pharmacy. Only three hours' attendance at school a week is required. High school certificates are not necessary.

Detectives Raid Naturopath School.—Under grand jury order the Blumer College of Naturopathy, Hartford, was raided by detectives, December 3, and the president, four of the faculty and twenty-seven students were taken as witnesses before the grand jury investigating medical frauds. This college specializes in night courses for persons employed in the daytime. An insurance clerk was found to be professor of pathology at the Blumer College. Among the students in training to become doctors of naturopathy is a former hod-carrier, telegraph messenger, carpenter, watchmaker and an ex-window washer. On December 6 the entire state board of naturopathy examiners was summoned to appear before the Holden grand jury.

The Diploma Inquiry Continued.—Following the revocation of the licenses to practice medicine of eighteen "physicians" mentioned in THE JOURNAL last week, the public health council met with the state health commissioner to prepare a list of these men with their photographs to be mailed to the examining boards of every state in the Union in order to prevent their practicing elsewhere. Seven more licenses have been revoked as follows: *Raymond C. Prisque of* Dayville; Bernard I. Kafka, Bridgeport; Aurelius De Janis, Norwalk; William Feldman, Hartford; Michael M. J'Anthony, Torrington; Samuel Posner, formerly of New Haven, now of Brooklyn, N. Y., and George W. Cotner, Stratford. Plans for a court fight to test the legality of medical license revocations by the state department of health and the constitutionality of the session of the Extraordinary Grand Jury convened in Hartford were made, November 30, in behalf of the eighteen men whose right to practice was previously annulled by the Eclectic examining board. Isador Yochelman, Bridgeport, stated that he would continue to practice, and Peter K. Koraitis announced that he will go to Chicago if stopped from practicing in Connecticut. The Attorney General stated, December 1, that the health department could not legally revoke the licenses unless it was in possession of evidence showing that they procured their licenses by fraud or have been convicted of crime in the practice of their professional business or convicted of felony.

Following the testimony of Governor Templeton regarding the $37,000 alleged legislative slush fund said to have been raised by the "quack" lobby, it is reported that the entire joint legislative committee on public health and safety will be called before the grand jury. State's Attorney Alcorn announced that he now has a witness (a prominent federal government official of Connecticut) who will testify that he saw twenty-four hours in advance of the examinations the list of questions to be asked by the Connecticut Eclectic Medical Examining Board in possession of a physician who has been named in connection with the scandal. This witness will testify the questions were offered for sale by this man.

A letter signed by "Dr." James A. Christian was placed before the grand jury addressed to Dr. Erich von Bradenstein of Cuero, Texas, which read as follows:

> "As secretary of the Connecticut Eclectic Medical Association, I am writing you to ask you to please send in your share of the expenses of the past legislature.
>
> "One bill was killed, one passed by the house and senate, but has not been signed by the governor, and I do not think it will be.
>
> "The expense for correspondence, secretaries, attorneys, etc., was very large. Your part of the expenses is $125. Please send me check or money order for this amount at once as these bills have to be taken care of.
>
> "Hoping to have an early remittance by you giving this matter your *personal attention and remitting your check, we can straighten this* matter out without delay, I remain."
>
> *The letter is dated June 18, 1923, and is signed by Christian.*

Dr. Frederick R. Ematrudo, New Haven, elected a member of the state eclectic examining board to replace "Dr." James A. Christian, November 28, resigned, November 29. On December 2, Prof. William P. Sachs was in the witness box, as well as Dr. Frederick C. Waite of Western Reserve University School, Cleveland, who recently returned from Missouri where he made a survey of the "diploma mills," recommending the revocation of their charters. Inasmuch as two of the four members of the eclectic examining board are involved in testimony before the grand jury, Mr. Alcorn has refused to divulge to the board any of the evidence adduced. Extradition from New York of "Dr." Sam Kaplan, identified by two witnesses as a St. Louis quack, who, it is alleged, boasted that he had obtained licenses in New York City for nearly fifty quacks, is being sought. Henry W. Nungasser of Burnside, who was summoned before the grand jury, December 5, was licensed by the eclectic board in August, 1893. He stated that he had graduated from the College of Hydrotherapy of Sachsen, Germany, in 1890. In January, 1922, he was arrested by the Hartford police on a charge of performing an illegal operation, was convicted, and sentenced to jail for thirty days and fined $200.

With 200 suspicious death certificates already culled from the state health records—the deaths occurred chiefly in the vicinity of Bridgeport, Norwalk and Stamford—the grand jury has been handed fifty additional cards which detectives are investigating. Another death in New Britain was made the subject of a further investigation of the career of "Dr." James W. Bush, who has been subpenaed. Bush, who was admitted to practice in Connecticut in 1920, holds a diploma from the Kansas City College of Medicine and Surgery. Charles A. Gasson, describing himself as a "chromopath," was arrested at Hartford, November 28. He is already under $10,000 bail on charges relating to his practice. More than $4,000 worth of drugs was seized in a raid at his home.

DISTRICT OF COLUMBIA

Secretary Work's Annual Report.—The first annual report of Dr. Hubert Work, Secretary of the Interior, was made public, December 5. Among other things, additional employees, pupil nurses, and an appropriation of $45,000 for housing facilities for nurses at Freedman's Hospital, Washington, were recommended. Discussing proposed changes in commitment procedure at St. Elizabeth's Hospital, Secretary Work incorporates, in his report, a report from the District commissioners urging commitments without formal trial in court unless demanded by the patients, and "voluntary" commitments whereby patients could be admitted without having to submit to a formal certification of insanity.

Bills Introduced in Congress.—The Pure Milk Bill, which failed to pass the last Congress and which would give the health officer of the District of Columbia authority to safeguard the milk supply, was reintroduced, December 4, by Representative Lampert. The workmen's compensation bill for the District of Columbia, which also failed to pass the sixty-seventh Congress, was reintroduced, by Representative Fitzgerald of Ohio; Representative Gilbert of Kentucky reintroduced his bill, which aims to prevent social disease in the District; a similar but more drastic measure has been presented by Representative Raker of California. A bill to regulate the practice of osteopathy in the District was introduced by Representative Smith of Idaho. Representative Clark of Florida introduced a bill prohibiting the intermarriage of white persons and negroes.

Georgetown University News.—The Georgetown University School of Medicine, Washington, will award a gold medal annually to the member of the Association of American Physicians who has rendered the greatest service in the year to progress and achievement of medical science and preventive medicine, it was announced recently, through the Georgetown Endowment Association in connection with a $16,000 fund established by Dr. George M. Kober, dean for the medical school, in commemoration of the fiftieth anniversary of his graduation in medicine from the university. Under terms of the Kober endowment, there is also established an annual scholarship from the interest of $4,000, preference in the award to be given to residents of the District of Columbia and of Modoc County, California. Another gold medal will be awarded annually to the student of the medical school who attains the highest rating in hygiene. The income from $10,000 will be used in awards for annual lectures in the medical school by distinguished men. The lecturers will be chosen the first and second years from members of the Washington Academy of Sciences, the Medical Society of the District of Columbia and the Association of American Physicians. In the third year the lecturers will be chosen from the medical corps of the army, navy, U. S. Public Health Service and members of the American Public Health Association. More than $500,000 has been raised by the university toward a permanent endowment fund since the campaign started, six months ago.

ILLINOIS

Physicians Fined.—According to reports, three physicians of Harrisburg, Drs. Francis M. Hart, Samuel J. Blackman and Charles W. Walden, were fined $300 each by Judge English in the federal district court, East St. Louis, November 21, when they pleaded guilty to violation of the Harrison Narcotic Law.

Personal.—Dr. Ernest B. Downs has resigned as assistant surgeon at the Danville Soldier's Home, *Danville*, to take a similar position at the Indiana State Soldier's Home Hospital, Lafayette, Ind.——Dr. Clesson Atherton, formerly assistant managing officer of the Kankakee State Hospital, Kankakee, has been appointed superintendent of the Southern Wisconsin Home for the Feebleminded and Epileptic, Union Grove, Wis., to succeed Dr. Henry C. Werner, resigned.

Chicago

Typhoid Under Control.—The health department has announced that the outbreak of typhoid fever in Chicago is under control. A total of 183 cases has been reported.

Personal.—Dr. Morris Fishbein of the editorial staff of The Journal delivered a lecture on "Medicine and the Press" before the Medill School of Journalism of Northwestern University, December 6.

Institute of Medicine of Chicago.—At a meeting of the board of governors of the Institute of Medicine the following officers were elected for 1924: Drs. Cassius D. Wescott, president; Isaac A. Abt, vice president; George H. Coleman, secretary, and Joseph A. Capps, treasurer. Dr. Ludvig Hektoen was reelected chairman of the board of governors. Dr. Frank Billings presented to the institute the sum of $10,000 to be apportioned in two funds of $5,000 each known as the Lewis L. McArthur and Ludvig Hektoen funds. The income is to be spent in the promotion of investigation in internal medicine, in the payment of honorariums for lectures before the institute, or for such other purposes as the board of governors may direct. Should the institute at any time give up its charter the money is to revert to a medical school connected with a university in the state of Illinois, to be used for similar purposes.

Society News.—A dinner was given at the Hamilton Club, December 5, in honor of Dr. Martin H. Fischer, Cincinnati, who, following the dinner, read a paper before the Chicago Medical Society.——A joint clinical meeting of the Chicago Society of Industrial Medicine and Surgery with the Illinois Society of Industrial Medicine and Surgery was held in Chicago in place of the regular December meeting, December 3-4. Clinics were held at St. Luke's and the West Side Hospital, December 3, followed by a dinner at the Great Northern Hotel in the evening. December 4, a clinic was presented by Dr. William B. Fisk, chief surgeon of the International Harvester Company at the McCormick works.——The annual meeting and election of officers of the Chicago Post 216, American Legion, was held, December 6. Dr. Joseph E. Rowan, Chicago, was elected commander for the ensuing year succeeding Dr. Patrick J. H. Farrell.——At a meeting of the Society of Medical History, at the John Crerar Library, December 14, Dr. B. Barker Beeson spoke on "Alfred Fournier and the Study of Syphilis" and Dr. George H. Weaver on "Edward Mead: Pioneer Neuropsychiatrist of Illinois."——The Irving Park Branch of the Chicago Medical Society went on record, November 13, as favoring the expulsion of members of the society who are using the Abrams method of diagnosis. The resolution adopted was presented to the council of the Chicago Medical Society.

IOWA

Health Service Course.—The State University of Iowa College of Medicine, Iowa City, has been selected by the U. S. Public Health Service as one of the four universities to conduct a summer course in public health service during the summer of 1924, it was announced, November 27.

LOUISIANA

Maternity Welfare Center.—Plans for the first maternity and infancy health center in Louisiana outside of New Orleans were made at a conference in Baton Rouge, December 7. Dr. Richard L. DeSaussure, of the American Child Health Association, is in charge of the work.

Society News.—At the regular meeting of the Shreveport Medical Society, December 5, the following officers were elected: president, Dr. Willis P. Butler; vice presidents, Drs. I. Henry Smith and E. L. Sanderson; secretary, Dr. Robert T. Lucas, and treasurer, Dr. Lewis Cass Spencer.——The Tri-State Medical Association—Arkansas, Texas, Louisiana—met at Texarkana, December 5-6. Officers were elected as follows: president, Dr. E. A. Chase, Texarkana; vice president for Texas, Dr. Frank Littlejohn, Marshall; vice president for Arkansas, Dr. L. J. Kosminsky, Texarkana; vice president for Louisiana, Dr. Edgar L. Sanderson, Shreveport, and secretary-treasurer, Dr. Frank Walke, Shreveport.

MARYLAND

Baltimore Election.—The Baltimore City Medical Society elected the following officers at a meeting held December 7, in Osler Hall: president, Dr. Gordon Wilson; vice president, Dr. Charles F. Blake; secretary, Dr. John T. King, Jr., and treasurer, Dr. C. Emil Brack.

Memorial Service to Dr. Halsted.—In memory of Dr. William S. Halsted, surgeon-in-chief of the Johns Hopkins Hospital, the Johns Hopkins University and hospital will hold a public meeting, December 16, at "Homewood," the university group. Addresses will be made by Dr. Rudolph Matas, New Orleans; Dr. John M. T. Finney, and Dr. William H. Welch, both of Baltimore.

Personal.—Dr. John M. Nicklas has been appointed medical consultant of the Maryland Tuberculosis Association.——Dr. Julius Bauer, professor in the medical department of the University of Vienna, lectured before the Baltimore City Medical Society, December 7, on "The Endocrine Glands and the Individual Constitution." The discussion was opened by Dr. Lewellys F. Barker and Dr. John C. Hemmeter.

MASSACHUSETTS

Diploma Inquiry Grows.—William [illegible] c [illegible] and Joseph C. Jasper of Boston and Willi[illegible] field have been arrested in the cleanup o[illegible] by request of the public safety department, it is reported. The charge against the men is failure to possess state certificates to practice. This marks the beginning of a statewide investigation in Massachusetts.

MICHIGAN

Chiropractor Sentenced.—According to reports, Elmer G. Green, Belding, was sentenced to three months in the county jail by Judge Hawley, November 17, for practicing without a license. The judge in pronouncing sentence said that if Green should violate the law again he would get the maximum sentence.

Physicians Guests of Dentists.—The First District Dental Society invited 1,200 physicians and their wives to hear Prof. Elmer V. McCollum, Ph.D., of Johns Hopkins University Medical School, Baltimore, lecture on "The Place of Nutrition in the Program of Preventive Dentistry," December 6, in Detroit. Dr. Arnold L. Jacoby, city psychiatrist, spoke on "Crime and Criminals" at the dinner given in connection with the meeting.

Personal.—Dr. Rollin H. Stevens, Detroit, president of the Radiological Society of America, addressed the Kent County Medical Society, November 14, on "Physiotherapy," at Grand Rapids.——Dr. Eugene S. Thornton, chairman of the board of health of Muskegon, tendered his resignation, November 26, as he will in future reside in North Muskegon.——Dr. and Mrs. Albert B. Grant, Detroit, celebrated their golden wedding, November 19.——Dr. Hugh Cabot, dean of the University of Michigan Medical School, Ann Arbor, addressed the San Francisco (Calif.) Academy of Medicine, December 7, on "Infection of the Kidneys."

Public Health Conference.—The third annual conference of health officers and public health nurses of Michigan, was held in Lansing, December 12-14, under the auspices of the department of health and the state public health association. It also marked the semicentennial of the founding of the first state board of health in 1873. Dr. W. S. Rankin, state health commissioner of North Carolina; Dr. George E. Vincent, president of the Rockefeller Foundation, and Dr. O. D. Kimball, Cleveland, addressed the sessions. It was announced that a goiter survey will be conducted in four selected counties, covering the entire school population.

MINNESOTA

Chiropractors' Certificates Refused.—It is announced that the Minneapolis Board of Education has refused to accept health certificates signed by chiropractors.

Personal.—Dr. Bruce W. Jarvis, Minneapolis, has accepted a position as medical missionary to China under the auspices of the Methodist Episcopal Church.——Dr. Henry M. Bracken, Minneapolis, formerly secretary and executive officer of the state board of health, has been appointed consultant on public health administration with the American Social Hygiene Association, an organization under the National Health Council. His headquarters will be in New York City.——Dr. Maurice G. A. Milan, for the last four and one-half years medical director of the Oakland Park Sanatorium, Thief River Falls, has resigned.

MISSOURI

Personal.—Dr. George P. Ard, state health supervisor of the eleemosynary board, resigned, December 10, to reside in Pennsylvania.——Dr. Walter R. Moore, St. Joseph, has been awarded one of the resident and travel scholarships for physicians given by the American Child Health Association.

Chiropractors Balk at Questionnaires.—Reports of the canvass being made by the police, at the instance of the state board of health, to register all licensed and unlicensed health practitioners in St. Louis, indicated that chiropractors are refusing to fill out the questionnaire on the ground that they are not properly recognized by the state board. The names of the St. Louis chiropractors refusing to fill out the questionnaire will be certified to the health commissioner along with their reasons for noncompliance.

NEBRASKA

Personal.—Dr. Andrew J. Jenison, Harvard, president pro tem. of the house of delegates of the state medical society for the last two years, has retired from active practice.——Dr. J. Jay Keegan of the University of Nebraska College of Medicine, addressed 200 students, constituting the premedical group of the state university, at a dinner, November 9.

Society News.—Drs. Theodore H. Koefoot and Charles L. Mullins, both of Broken Bow, were elected president and secretary-treasurer, respectively, of the Custer County Medical Society at the annual meeting at Broken Bow, November 15.——Dr. Gerald B. Webb, Colorado Springs, Colo., gave a lecture on "Tuberculosis" before the Lancaster County Medical Society, at Lincoln, November 3.——Dr. Bertram W. Sippy, Chicago, was guest of honor at a meeting of the Omaha-Douglas County Medical Society, at Omaha, December 11.

NEW JERSEY

Physician Fined.—According to reports, Dr. Edward Ruberto, carrying an Italian diploma, was fined $25, by Judge Cleary, October 26, for practicing medicine in Bound Brook without a New Jersey state license.

NEW YORK

Physicians Buy Health Resort.—A number of Buffalo medical men of which Dr. Walter S. Goodale, superintendent of the Buffalo City Hospital, is head, have purchased the Jackson health resort at Dansville which was established in 1858 by Dr. James Caleb Jackson, and remained in the Jackson family until the World War when the government took it over.

Milbank Foundation.—Twenty-one classes in home hygiene and care of the sick with 346 in attendance have been organized in Cattaraugus County under the auspices of the Milbank Health Demonstration Fund of New York and the Olean and Salamanca Red Cross chapters. A class of eight Indian women of the Seneca tribe has been organized on the Allegheny Indian Reservation in charge of a Milbank demonstration nurse.

Quacks in New York.—Governor Smith called a conference in the Executive Chamber, Albany, December 7, to discuss measures to protect the people of his state in view of the recent disclosures concerning the diploma mills. Representatives of the state medical society were present. Dr. Matthias Nicoll, Jr., state health commissioner, recommended, December 1, that the medical practice act in New York be amended to make it more effective.

War on quack dentists was officially opened when Attorney General Sherman and Dr. Minor J. Terry, secretary of the state dental board of examiners, began an investigation of all dentists of the state, December 6. Irving Lipton, a dentist of the Bronx, was sentenced to six months in jail for practicing without a license. He had previously been fined $50 for a similar offense. He was a tailor by trade, it is alleged, and had no schooling in dentistry. It is estimated that there are from 500 to 1,000 bogus dentists in New York City alone.

In order to insure protection to the public and prevent them from falling into the hands of fake medical practitioners the Kings County Medical Society of Brooklyn is issuing cards to every one of the 1,700 members of the society, signed by the president and the treasurer, which will serve as a guarantee to the patient that he who presents it is an authorized physician. Before a physician can obtain such a card he must first get a certificate from the county clerk and present it in person to the society.

New York City

Personal.—Dr. Georges Portman, of the University of Bordeaux, arrived in this city recently to lecture in New York, Boston and Philadelphia, Montreal and Quebec.

New York Academy of Medicine Elects.—At a meeting of the New York Academy of Medicine, December 6, the following officers were elected: vice president, three years, Dr. Herbert S. Carter; corresponding secretary, three years, Dr. D. Bryson Delavan; treasurer, three years. The president is elected for a two-year term; Dr. George David Stewart continues to hold this office.

Complaints Against Quacks.—All complaints against unlicensed physicians, dentists, midwives and pharmacists received by the police and health departments and by social agencies will be turned over to the district attorney's office for investigation. This decision was reached, December 6, at a conference of officials of the two city departments and representatives of the Medical Society of the County of New York. The county medical society alone has been investigating an average of two complaints a week of unlicensed practitioners in Manhattan. The district attorney will appoint an assistant to investigate these complaints, and prosecution in special sessions will follow when evidence warrants.

OHIO

Chiropractors Jailed.—According to reports Dr. W. L. Roller and Dr. Eva G. Sauer, chiropractors of Findlay, went to the county jail, November 19, in preference to paying a fine of $25 and costs, for practicing medicine without a license. ——According to reports, J. G. Klein and David A. Stemen, chiropractors of Defiance, were fined $50 and costs each by Mayor Marlatt, November 21, for practicing medicine without a license. The men were jailed on failure to pay the fines.

Hospital Merger.—Announcement has been made that the Seton Hospital and the Good Samaritan Hospital, Cincinnati, both operated by the Sisters of Charity, will merge. The Seton Hospital will be abandoned and a new pavilion erected on the grounds of the Good Samaritan Hospital in the spring at a cost of $500,000. This wing will provide 200 beds and include an outpatient department and a roof garden for tuberculous (bone) cases; an entire floor will be devoted to goiter cases.

OKLAHOMA

State Health Officer Resigns.—Dr. Albert E. Davenport, state health commissioner who, it is reported, was charged with paying former Governor Walton's chauffeur from funds of the state health department, has resigned.

PENNSYLVANIA

Safety Campaign for Industry.—An increase of 35 per cent. in the casualty list of Pennsylvania industry in eleven months of this year, as compared with the whole of 1922, was announced, December 7, by Dr. Royal Meeker, secretary of the state department of labor and industry. This does not include mines and public utilities. Increase of industrial accidents can be attributed in part to a greater number of persons employed, increased production, lack of safety education or adoption of safety methods, and the "let-up of interest in safety."

Philadelphia

Children Honor Leidy.—In connection with the memorial meetings celebrating the centenary of Dr. Joseph Leidy, at the Academy of Natural Sciences and the College of Physicians, more than 350 pupils of the Joseph Leidy Public School assembled on the west side of City Hall Plaza and placed a wreath on the statue of Dr. Leidy.

Maternity Welfare.—A committee was appointed some weeks ago by the Philadelphia County Medical Society to draft measures to reduce the mortality rate among mothers. At a meeting, November 28, it was recommended that the problem be submitted to an organization such as the Rockefeller Foundation for investigation.

Clinics Throughout the State.—Organization of the entire state of Pennsylvania in the war on heart disease and the establishment of "heart clinics" in the leading towns and cities is the program of the Philadelphia Association for the Prevention and Relief of Heart Disease. One "heart clinic" has been established in Pittsburgh; another in Harrisburg and another in Reading. In its two years of existence, the Philadelphia association has established nineteen heart clinics at local hospitals. According to the executive secretary, the mortality from heart diseases has been:

1919	3,123
1920	3,275
1921	3,509
1922	3,803

TEXAS

Physician Sentenced.—Dr. W. B. Pruitt, Glen Rose physician, was sentenced to two and one-half years in the state penitentiary, November 23, when he pleaded guilty to violation of the Volstead Act. Dr. Pruitt will file an appeal.

Health Conference in Mexico.—Dr. William H. Beazley, state health officer, with Dr. Hinkle Garst, director of child hygiene; Dr. John R. Mahone, in charge of border control work, and a sanitary engineer left for Mexico by way of Laredo, November 25, to attend a public health conference by invitation of President Obregon (The Journal, November 10, p. 1617). The mission spent six days in conference with government officials on yellow fever control and spread of communicable diseases, the infant death rate along the border, violations of the Harrison Narcotic Law and the advancement of sanitation in border towns. Restriction of immigration of persons likely to spread communicable diseases, mosquito control and child welfare work supported by border sections were also discussed.

VIRGINIA

Physician Honored.—At the seventh annual meeting of the Association of Surgeons of the Chesapeake and Ohio Railroad, Dr. William T. Oppenheimer, Richmond, chief surgeon, was presented with an automobile by fellow members of the association.

Puerperal Deaths.—A study of all deaths in Richmond from puerperal causes has been made in the last three years. The white death rate has been gradually reduced in the last sixteen years from 22.2 per hundred thousand in 1907-1911; 20.1 in 1912-1916; 17.9 in 1917-1921 to 10.5 in 1922. The colored death rate from puerperal causes has decidedly increased, being 33.7 in 1907-1911; 42.5 in 1917-1921, and 38.4 in 1922. The death rate from septicemia has decreased from 10.6 per hundred thousand population in 1907 to 6.2 in 1922.

WASHINGTON

Hospital News.—Cushman Hospital, Tacoma, known as U. S. Veterans' Bureau Hospital No. 59, has been enlarged to care for disabled ex-service women in the Northwest. Two buildings have been set aside to care for former nurses, yeomanettes, telephone operators and other women enlisted in the army and navy. One section will be used for tuberculosis cases and the other for psychiatric cases.——A new sixteen bed ward for children has been added to Oakhurst Sanatorium, Elma, under the auspices of the Kiwanians.——Monroe Hospital, Monroe, has been sold by Drs. Charles H. Soll and Herman K. Stockwell to Drs. Allison, Tacoma, and James A. Durant, Snohomish.——A sanatorium has been opened by Dr. Albert Lessing, Leavenworth, at the foot of the Cascade Mountains.——Dr. Leon M. Wilbor has arrived in Tacoma to take charge of the neuropsychiatric U. S. Veterans' Hospital, under construction at American Lake.

WISCONSIN

Society News.—At a meeting of the committee on public policy and legislation of the Milwaukee County Medical Society, November 26, the members favored a plan to protect the public against fake physicians and fake clinics. A subcommittee was appointed to cooperate with public officials and newspapers in bringing to light any questionable methods resorted to by practitioners.

CANAL ZONE

Bottled Milk for Zone.—A shipment of 20,000 bottles of milk to be sold at cost to milk dealers of Colon and Panama has been received by the health department of the Panama Canal. This action was taken in order to insure that only bottled milk will be sold in the terminal cities and in the Canal Zone.

Hospital News.—Capt. Henry J. Hayes, M. C., U. S. Army, has been assigned to duty at Corozal Hospital; Major J. M. White, M. C., U. S. Army, at the Ancon Hospital, and Lieut.-Col. S. J. Morris, M. C., U. S. Army, has reported for duty as department medical inspector and assistant to the department surgeon, Col. Henry Webber, M. C., U. S. Army.——Weekly clinical meetings are held at the Ancon Hospital, on Thursdays, and once a month there is a journal review at which résumés of recent medical literature are presented. Visiting physicians are always welcome. Attendance at the clinical meetings consists of representatives of the Medical Corps of the Army and of the Navy, the U. S. Public Health Service and the local health officials and medical profession.

PHILIPPINE ISLANDS

Epidemic of Anthrax.—According to reports 1,000 carabaos (water buffalo) have died from anthrax in central Luzon during the last few weeks, which seriously interferes with agricultural activities. The Philippine government has assigned every available veterinarian to work in the area in which the epidemic is raging and the United States has been requested to detail troops to assist in the enforcement of quarantine regulations.

CANADA

Canada's Opinion of E. R. A.—The *Canadian Medical Association Journal* in a reply to an inquiry about the electronic reactions of Abrams states that in their opinion "the use of Abrams' machine by members of the med [illegible] fession, other than for the purpose of investi [illegible] d [illegible] entatio [illegible] unjustifiable and unethical; and that exploitation of the machine for personal and financial gain is gross quackery and fraud."

Personal.—Dr. Samuel Hanford McKee has retired as secretary of the Montreal Medico-Chirurgical Society following seventeen years' service. Members of the society presented Dr. McKee with a gold fountain pen.——Professors Archambault and Fournier are giving a course of lectures on "The Treatment of Venereal Disease" at the Notre Dame Hospital, Montreal.——Dr. V. M. MacDonald, director of the Child Welfare Association of Montreal, was selected as one of the Canadian delegates to the American Child Health Association Convention in Detroit.——Dr. Thomas J. W. Burgess, since 1890 superintendent of the Protestant Hospital for the Insane at Verdun, has retired as active manager of the institution. Dr. Carlyle A. Porteous will succeed him.——Dr. John Copeland has been appointed assistant superintendent of the Montreal General Hospital to succeed Dr. Donald C. Smelzer who has gone to Buffalo, N. Y., to assume the post of assistant superintendent of the General Hospital there.

GENERAL

Notice of Change of Address.—Physicians are reminded that it is necessary under the present law to notify the collector of Internal Revenue, narcotic division, of any change in office address. Failure to do so means a fine of 25 cents for each month passed since removal, and an additional fine at the next registration to prescribe narcotics.

Prize for Scientific Work.—The American Association for the Advancement of Science announces that to mark the seventy-fifth anniversary of the association, a member has donated $1,000 to be awarded as a prize to the author of a paper containing a notable contribution to the advancement of science, presented at the Cincinnati meeting either before the association or before one of the affiliated societies.

Western Surgical Association.—At the annual meeting of the Western Surgical Association at Colorado Springs, Colo., December 6-8, the following officers were elected: president, Dr. Donald MacCrae, Jr., Council Bluffs, Iowa; vice presidents, Drs. Lewis H. McKinnie, Colorado Springs, and Edmund D. Clark, Indianapolis, and secretary-treasurer, Dr. Harry P. Ritchie, St. Paul. French Lick Springs was chosen as the meeting place for the 1924 convention.

Tri-State Medical Meeting.—At the annual meeting of the Tri-State Medical Society of Arkansas, Mississippi and Tennessee, held at Memphis, Tenn., November 20-22, under the presidency of Dr. Carl M. Harwell, Osceola, Ark., the following officers were elected for 1924: president, Dr. Landon A. Yarbrough, Covington, Tenn.; vice presidents, Drs. T. J. Stout, Brinkley, Ark.; William H. Anderson, Booneville, Miss., and Benjamin C. Arnold, Jackson, Tenn. Drs. Arthur F. Cooper and James A. Vaughan, both of Memphis, were reelected secretary and treasurer, respectively.

National Research Council.—The following resolutions were passed by the council at the meeting of the interim committee recently:

> Whereas, An accurate knowledge of thermal effects connected with chemical processes is of the highest importance to the chemical and metallurgical industries, and whereas there does not exist in this country at the present time any bureau, laboratory or other organization devoted to investigations in this field; therefore be it
>
> *Resolved,* That the National Research Council, acting on the recommendation of the division of chemistry and chemical technology, direct the secretary to bring this matter to the attention of the director of the U. S. Bureau of Standards and urge him to create within the bureau a laboratory which shall be devoted primarily to research in this field; and further, be it
>
> *Resolved,* That the National Research Council assist and support the director of the Bureau of Standards in any efforts which he may make in this direction.

New Methodist Hospitals. — The Methodist Episcopal Church announces that more than $16,000,000 has been added to the properties and endowment of the hospitals, children's and old people's homes of the church since 1920. During the last year the total value of buildings dedicated was $3,450,000, and the value of buildings nearing completion is $2,445,000. Nearly $2,500,000 was raised in special campaigns during the last year. The church has today eighty-one hospitals, forty-four homes for children, thirty-nine homes for the aged and eleven other institutions of a total valuation, with endowment, of $40,000,000. During the last year 4,000 orphans and half-orphans were cared for and 1,800 men and women. Many of these hospitals are in districts where before their construction there were no such institutions within a range of 100 to 200 miles.

Society News.—The American Sanatorium Association will hold a meeting in Philadelphia, December 14-15, devoted to treatment. Among the speakers will be Dr. Lawrence F. Flick, founder and director for many years of the White Haven Sanatorium, White Haven, Pa., and Dr. T. Miller Tyson, director of the Rush Hospital for Consumptives, Philadelphia.——The fourth annual meeting of the Association for Research in Nervous and Mental Diseases will be held in New York City, December 27-28, under the presidency of Dr. Walter Timme.——Section N, medical sciences, of the American Association for the Advancement of Science will meet at Cincinnati, December 29. The morning program consists of a symposium on "Interrelated Problems of Medical Workers" and the afternoon session a symposium on the "Endocrines." Among the speakers will be Dr. Richard P. Strong, director of the department on tropical diseases, Harvard University, Boston; Prof. Henry B. Ward, University of Illinois; Dr. John R. J. MacLeod, University of Toronto, Canada, and Dr. George W. Crile, Western Reserve University, Cleveland.

Death of William Whitford.—Two hours after his return from reporting the meeting of the Western Surgical Association at Colorado Springs, Colo., Mr. William Whitford, for thirty-four years official medical stenographer for the sessions of the American Medical Association, state, district, county and international societies, died suddenly in Chicago, December 11, of myocarditis, at the age of 66. At the sessions of the seventy-fourth annual meeting of the American Medical Association in San Francisco last June, resolutions were passed praising the work of Mr. Whitford in reporting thirty-four consecutive meetings of the Association and the proceedings of the House of Delegates ever since its organization. A rising vote of appreciation in recognition of his services was extended by the House. At the last meeting of the Tennessee State Medical Association Mr. Whitford was made an honorary member of the society. He was passing through Chicago on his way to White Sulphur Springs, Va., to report the meeting of the Southern Surgical Association. Mr. Whitford with his quiet retiring manner, was liked and respected by all who knew him.

At its regular meeting held December 12, the Executive Committee of the Board of Trustees of the American Medical Association adopted the following resolution:

> "Mr. William Whitford, who for many years, served as the official stenographer at annual sessions of the House of Delegates and at various Sections and Committees of the Association, died suddenly at his home at Oak Park, Illinois, on Monday, December 10. The Executive Committee of the Board of Trustees and the officials at the headquarters of the American Medical Assocaton wish to place on record in the minutes of the Board a sincere expression of the respect and regard for the long and efficient services which Mr. William Whitford rendered the Association, and also for his manliness and high character."

Death Rates for 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show a mortality rate for the registration area of 11.8 in 1922 against 11.6 in 1921 per 100,000 population. Six states—Michigan, Mississippi, Ohio, Pennsylvania, Virginia, Wisconsin—show lower mortality rates for 1922 than for 1921. The lowest 1922 state rate (8.1) is that of Idaho and the highest (14.7) that of Maine and Vermont. The lowest rate for cities which at the last census had populations of 100,000 or more was that of Akron (7.5); the highest (17.8) that of Memphis. Crude rates by no means tell the whole story regarding the healthfulness of different localities. Occupations, race stock, the sex and age distribution of the population, and the relative number of deaths of nonresidents must be determined before one city or state can be considered more healthful than another. For example, death rates adjusted for the age and sex composition of the populations in different states, show what the death rate would be if all states had the same proportion of males and females, and the same proportion of the total population in each age group. Thus adjusted the 1922 rates are lowest (9.1) for Nebraska and highest (13.5) for Colorado; while for cities the lowest adjusted rate (9.2) is for Akron; the highest (19.3) for Memphis.

Office of Prohibition and Narcotic Information.—Drugs valued at approximately $500,000 seized by narcotic agents throughout the country during the last three months, and which have no value for medicinal purposes, were destroyed, November 20, by a committee appointed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury. The drugs destroyed include diacetylmorphin hydrochlorid (heroin), coca leaf powder, opium, morphin tablet tritulates, codein, ethyl morphin hydrochlorid (dionin), codein phosphate, cocain hydrochlorid, morphin, gum opium, paregoric, laudanum, toothpastes made largely of cocain, eye salves containing cocain and morphin, and other preparations containing narcotic drugs. Under the law, every three months the narcotic agents in charge list drugs which have been seized, and ship them to the head of the Narcotic Division. These drugs are forfeitable to the government under the law after the seizure has been analyzed and has served its purpose in court. In pursuance of law, all of these narcotic drugs which are not fit for medicinal purposes are disposed of by the duly appointed committee, after they have been carefully checked. Such drugs as are fit for medicinal purposes are turned over to the Public Health Service for use in the various institutions and hospitals throughout the country.

The President's Message.—The message of President Coolidge touched on two points of definite interest to the medical profession. It apparently is the purpose of the President to carry out the program of the late President Harding with reference to the reorganization of the various departments and bureaus of the government on a more efficient basis than at present. In his message, the President said:

"A special joint committee has been appointed to work out a plan for a reorganization of the different departments and bureaus of the government, more scientific and economical than the present system. With the exception of the consolidation of the War and Navy departments and some minor details, the plan has the general sanction of the President and the Cabinet. It is important that reorganization be enacted into law at the present session."

He also recognized the problem presented by the education of physicians for the negro, about which he said:

"Already, a considerable sum is appropriated to give the negroes vocational training in agriculture. About half a million dollars is recommended for medical courses at Howard University to help contribute to the education of 500 colored doctors needed each year. On account of the migration of large numbers into industrial centers, it has been proposed that a commission be created, composed of members of both races, to formulate a better policy for mutual understanding and confidence. Such an effort is to be commended. Every one would rejoice in the accomplishment of the results which it seeks. But it is well to recognize that these difficulties are to a large extent local problems which must be worked out by the mutual forbearance and human kindness of each community. Such a method gives much more promise of a real remedy than outside interference."

Comment on Connecticut Medical Licensure Scandal.—As was pointed out in THE JOURNAL last week, one of the most significant results of the present scandal in medical licensure has been the turning to it of the editorial attention of the press. Suddenly, the evils to which THE JOURNAL has repeatedly called attention for years, have begun to receive the public attention that may possibly result in their removal. Newspaper comment has, in general, been a recognition of the way in which the medical profession has endeavored to purge itself of the unqualified and disreputable.

The New York *Evening Post* was prompt to credit the American Medical Association with its important work. It discerns "a striking lesson in the propriety of setting up a single state examining board, and asking the medical profession to keep an eye upon its standards. Connecticut has had six boards, with a resulting lack of responsibility." And, the *Post* continues:

> Standards of medical education in the United States are now at a safe height. School after school, state board after board, has adopted the rule that two years' collegiate work shall be required before admission to the medical course, till it is in general force. The *American Medical Association and the Council on* Medical Education declared in 1916 for a standard of four years' actual medical training, followed by one year in hospital, and this has been widely accepted. But we still have to guard against scoundrels who are outside the law, and against representatives of various pseudoscientific "isms" who try to climb over the law.

The *British Medical Journal*, in its issue for December 1, commenting on this exposé of conditions that have existed in this country, closes its editorial:

> The Journal of the American Medical Association has long carried on a very spirited fight against the degradation of the profession of medicine by quackery, licensed and unlicensed. In one respect reformers in the United States are worse off than we are, because the licensing of practitioners of medicine is not a national matter, but one reserved to each state of the Union. The Journal, however, has pegged away, and one legislature after another has been convinced until now the backward states can be counted on the fingers of one hand.

The Boston *Transcript* recognizes that responsibility rests clearly with the state:

> The quack, to be sure, we shall no doubt always have with us. There will always be a numerous class of sufferers who prefer the charlatan. No state can endow its citizens with common sense. But the state can at least prevent such wholesale exploitation of the credulity of the ignorant as now prevails.

The Pottstown, Pa., *News* seems to have considered the physician's point of view, primarily pointing out that it is the duty of the state to protect its public and its honest medical profession.

> *In rounding up the quack doctors* who are *practicing* under the diplomas of fake medical schools, the state authorities are doing the public an important service, even though somewhat belated. The qualified physician spends years in preparation for his work. . . . Very often he works without pay. His certificate of graduation and his state license are his guarantees of good faith with his patients. Any wonder, then, that he should feel that when the state permits an illegal or fake practitioner to practice "right under his nose" there is something wrong and unjust about it? Why should he have been required to spend years in college and in training at great expense and personal sacrifice, while this irresponsible person can go about with but a few months' preparation and a certificate from a fake medical school and rake in the sheckels from those who are led to put their belief in him?

The Pennsylvania *Inquirer* sees in the present scandal another exemplification of the gullibility of the public.

> *Americans are greatly given to experimenting on themselves in* cases of illness, real or imaginary. Nowhere do "remedies" for this or that disorder have a wider and more indiscriminate sale. Many are never happy without this self-dosing. The medical profession is laying stress in these days upon the prevention of disease by the obervance of sanitary laws and avoiding so far as possible the use of drugs. But thousands of otherwise intelligent persons cling to the habit of "taking something" whenever their physical condition is below par.
>
> That is one reason—perhaps the chief reason—why quackery flourishes. People not only prescribe for themselves, but they also let any one who makes a pretense of knowledge prescribe for them.

The Chicago *Evening Post* points out the fact that Illinois has had its medical scandals in the past, and that states must be ever vigilant to prevent the inroads of impostors, and says:

> The outcome of the Connecticut investigation may serve to impress *on the public generally the importance of supporting the medical* authorities in efforts to rid the profession of those not qualified for the practice of medicine. The public and its representatives in legislatures and Congress should endeavor to make rigid the safeguards which should be thrown around the medical profession. The promoter and distributer of fraudulent securities are punished for mulcting the investor of his savings, and even more drastic penalties should be imposed upon the unscrupulous who trifle with human life.

What should be the remedy? In New York State, the health commissioner has proposed annual registration as a method of controlling medical practice. While this method has some advantages, it is also subject to most serious disadvantages. Indeed, the New York *Mail* feels that it is unfair for the state to place an additional burden on the medical *profession, when it is the duty of the state to protect the* profession:

> If the quack will take a chance on practicing without a state license now, he will be apt to take a chance on the registration system. His patients have no means of checking up his conduct in this respect, and his chance of escaping detection would seem to be neither worse nor better than they would be at present if systematic watch were kept up by health boards and the local medical organizations.
>
> But to the reputable practitioner the annual license is an insult and a nuisance. Why should he be singled out for such aggressions? Already he is under many vexatious requirements imposed by drug and liquor laws, and he does a considerable amount of statistical work for the state gratis. These may be necessary incidents of his calling, but at least they should be limited as far as possible. To inflict a new obligation on ten thousand honorable men on a vague chance of catching one crook seems hardly fair.

The New York *Times* considers the provision of a single nonpartisan, nonpolitical board in each state the factor of primary importance:

> In no state should there be more than one medical examining board, and that one alone should issue licenses to practice medicine. . . . Not one of the men licensed by such a board would claim universal efficacy for any form of treatment. Whoever does that is instantly revealed as a quack, either ignorant or dishonest, and he is not any the less a quack because he can produce "testimonials" from grateful patients, including the familiar legislator whose close relative was saved from fast approaching death by an "irregular" after he, or more often she, had been given up by anywhere from one to a dozen "regular" doctors.

The Louisville *Herald* recognizes the importance of educating the public to understand the difference between scientific medicine and the vagaries of the cults:

> The remedy for quacks lies quite as much in a more enlightened human nature as in a rigid inspection. The protection of properly qualified medical boards of examination goes a long way, but the public must do its share. The requirements of such boards cannot well be too high, nor their vigilance too alert. . . . There are numbers of people who seem to take delight in "cures" and proceed from one fake to another. For them we fear there is no remedy. They are, as it were, addicts and beyond hope.

We must not forget to quote the *Christian Science Monitor*, which, as might have been expected, makes the present incident an occasion for attack on the entire medical profession. It emphasizes the widely heralded statement of one of the men under indictment that there are "25,000 quacks scattered throughout the country," and it continues:

> But chief interest will center in the involuntary confession, circumstantially made, that physicians of the "regular" school stand ready to condone and cover up the mistakes of all their brethren whom they assume to be authorized to "practice" upon their confiding victims. In this willingness to overlook "professional" mistakes, the public sees a tendency as menacing, perhaps, as that offered by so-called [illegible] who buy their credentials from diploma mi[illegible] their [illegible] from established physicians.

LATIN AMERICA

Inauguration of the Peruvian Medical Society.—The *Reforma Médica* hails the foundation of the Circulo Médico Puruano as the third great milestone in the progress of the profession in Peru. The two others were the erection of the medical school in 1856 and the foundation of the Academia de Medicina in 1887.

FOREIGN

Plague in Constantinople.—The presence of plague is officially announced in Constantinople, Ecuador and Peru. The cases are not numerous.

Pro Leprosis.—This is the name of a new international society founded by Prof. V. d'Amato, of the chair of dermatology at Rome, to aid those who are willing to aid lepers in any country. Amato asks for suggestions, contributions and assistance in propaganda. His address is via Cesare Battisti, 133, Rome.

Span of Life in Japan.—A pamphlet entitled *Primary Lessons in Hygienics,* compiled by the foremost professors by order of the government, and recently issued by the Japanese Department of Home Affairs, announces that statistics show that the average life of a Japanese is as low as 30 years, while that of the European is 50 years.

Medical Days.—The success of the Brussels' "Three Medical Days" has inspired Lisbon to a similar enterprise. The *Medicina Contemporanea* announces that a "National Medical Week" is being organized at Lisbon, when the hospitals and clinics will welcome medical guests, and authorities will lecture on recent progress in medicine.

Memorial to Roentgen.—At a meeting of the British Roentgen Society, recently, it was agreed that in order to commemorate the work of the late Professor Roentgen an annual award of $50 (or its equivalent in books or apparatus) shall be presented to the member of the society whose contributions during the session relating to the science or practice of medical or general radiology, are most distinctive.

Centenary of Medical Book Club.—A dinner was held, November 14, in celebration of the hundredth anniversary of the foundation of the Lancaster (England) Medical Book Club, which was founded, Nov. 11, 1823. The original minute book was shown containing the following: "It is expedient to establish a society to be called the Lancaster Medical Book Club to consist of the gentlemen present and such other medical gentlemen resident in Lancaster as shall hereafter be elected."

Seventy-Fifth Anniversary of Belgian Medical Journal.—On the recent seventy-fifth anniversary of the foundation of the *Scalpel,* it was planned to offer a tribute of appreciation to Dr. L. Dejace who has been editor and manager for forty years. His portrait in oils will be presented to him, and all subscribing 10 francs or more to the fund will receive a large photograph of the portrait. The ceremonies are to include a banquet. Dejace is honorary president of the Féderation médicale belge.

Trachoma in Indo-China.—Reports from the French Ophthalmic Hospital, Hanoi, Tonkin, state that from 1917-1920 a large increase (in comparison to other diseases) in the number of trachoma cases coming for treatment was noticed. During that period 16,625 operations were performed, and of these 13,576 were for trachoma and its complications.——In Annam trachoma furnishes 36 per cent. of the outpatients, 50 per cent. of the inpatients, and 69 per cent. of the operations, and easily ranks first as a cause of blindness.

University News.—At a special meeting of the University of Glasgow, Scotland, Court, presided over by the Lord Rector, the establishment of the Samson Gemmell chair in medical pediatrics was approved. The chair is to be associated with the Royal Hospital for Sick Children.——The appeal for a quarter of a million pounds to erect the new science wings of the University College of South Wales and Monmouthshire at Cardiff, has resulted in £156,000 ($700,000) being subscribed. Lord Glanely gave £10,000 and Sir David R. Llewellyn, £28,000.

Anthrax in Australia.—The first case of anthrax infection in man to be reported in Australia was in 1917; since then thirty-two others have been reported. Of the thirty-three cases reported, thirty-one occurred on the shaving area; two on the forearm were traced to infected goatskins. The majority of infected brushes entered the country from Japan. Importation of brushes from certain countries was then prohibited. Japan agreed to guarantee disinfection and the embargo was lifted. No cases of anthrax has been traced since to imported brushes.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 26, 1923.

Insanity and Criminal Responsibility

For many years the defense of insanity in cases of crime have given rise to acute differences of opinion in the courts. Judges follow the McNaughton rules, so called because they were laid down half a century ago by a legal committee in consequence of the plea of insanity in the case of McNaughton. These rules make the criminal responsibility of a prisoner depend on the answer to two questions: Could he distinguish right from wrong? Did he know the nature of the act with which he is charged? Psychiatrists have uniformly contended that these tests are too narrow and are out of date, as they take no notice of uncontrollable impulse arising from mental disease. This defense is very repugnant to the legal mind, and judges have regarded it almost as an attempt to assume insanity because some heinous crime was committed. In the words of one luminary, they "refuse to take the law from Harley Street." A committee was therefore appointed by the government to consider what changes, if any, are desirable in the existing law when the plea of insanity is raised. The committee, which consisted entirely of judges and eminent lawyers, has presented a report which must be regarded as a victory for the medical profession. The committee recommends that it be recognized that a person charged with an offense is irresponsible when the act is committed under an impulse which he was by mental disease deprived of any power to resist. Save as above, the rules in McNaughton's case should be maintained. When a person is found to be irresponsible on the ground of insanity, the verdict should be that the accused did the act (or made the omission) charged, but is not guilty, on the ground that he was insane so as not to be responsible, according to law, at the time. Accused persons should not be found on arraignment unfit to plead except on the evidence of at least two physicians, save in very clear cases. Provision should be made for examination of an accused person by an expert medical adviser at the request of the prosecution, the defense, or the committing magistrate.

MEDICAL VIEWS AT VARIANCE

Evidence was given on behalf of the British Medical Association and the Medico-Psychological Association. Unfortunately, the views of these two bodies were, on the main question, in opposition. The British Medical Association would retain the existing law with a modification as to lack of control; the Medico-Psychological Association would sweep away the present rules and substitute other questions for the jury. The committee could not accept the recommendation of the Medico-Psychological Association and concur with the views of the British Medical Association. The conclusions arrived at by the Medico-Psychological Association were: 1. The legal criteria of responsibility expressed in the rules in McNaughton's case should be abrogated and the responsibility of a person should be left as a question of facts to be determined by the jury. 2. The judge should direct the jury to answer the questions: (*a*) Did the prisoner commit the act alleged? (*b*) If he did, was he at the time insane? (*c*) If he was insane, has it nevertheless been proved to the satisfaction of the jury that his crime was unrelated to his mental disorder? One of the difficulties of the committee as to this view was that the Association gave no clue as to what it regarded as the test of criminal responsibility. It regarded insanity and irresponsibility as coextensive. All the witnesses were, in substance, agreed that the effect of *c,* which threw on the prosecution the onus of satisfying the jury that the act of the person found to be insane was "unrelated" to his mental disorder, would be to cast a burden which could not be discharged, and that the question was otiose. The vagueness of the term "unrelated" was pointed out; and the phrase eventually was altered to "the mental disorder was not calculated to influence the commission of the act"; but the difficulty of proof was not altered by the turn of the phrase. The far-reaching effect of granting immunity to every one who could be said to be of unsound mind was perceived when the medical conception of unsoundness of mind was considered: "Unsoundness of mind is no longer regarded as in essence a disorder of the intellectual or cognitive faculties. The modern view is that it is something much more profoundly related to the whole organism—a morbid change in the emotional and instinctive activities, with or without intellectual derangement. Long before a patient manifests delusions or other signs of obvious insanity, he may suffer from purely subjective symptoms which are now recognized to be no less valid and of no less importance in the clinical picture of what constitutes unsoundness of mind than the more palpable and manifest signs of the fully developed disorder which may take the form of delusions, mania, melancholia or dementia."

THE QUESTION OF PUNISHMENT

The committee holds that "the existing rule of law is sound; that a person may be of unsound mind and yet be criminally responsible. A crime no doubt implies an act of conscious volition; but if a person intends to do a criminal act, has the capacity to know what the act is, and to know the act is one he ought not to do, he commits a crime. Whether he should be punished for it is not necessarily the same question. Two of the objects of punishment are to deter the offender from repeating committing the offense. If the mental conditions presupposed exist, punishment may be fairly inflicted. It is probable that the offender and others will be deterred.

UNCONTROLLABLE IMPULSES

It was established to the satisfaction of the committee that there are cases of mental disorder in which the impulse to do a criminal act recurs with increasing force until it is uncontrollable. Thus, cases of mothers who have been seized with the impulse to cut the throats of, or otherwise destroy, their children, to whom they are normally devoted, are not uncommon. In practice, the accused is found guilty, but insane. In fact, the accused knows the nature of the act, and that it is wrong; and the McNaughton formula is not logically sufficient. Such cases should be brought expressly within the law by decision or statute. The question to be determined should be, not whether the accused could control his conduct generally, but could control it in reference to the particular act or acts charged. Lack of control would be relevant to the question whether the lack of control in the particular case was due to mental disorder or to a mere vicious propensity.

FORM OF VERDICT

Juries are frequently, for brevity, instructed to return, if the facts warrant it, a verdict of "guilty but insane." This seems illogical. The verdict is one of acquittal. An accused cannot be "guilty" of a physical act which is not in itself an offense. The word "guilty" in criminal trials should connote only criminality, the commission of a crime—the very thing which on the finding as to the state of mind of the accused is negatived. When insanity is such as to produce irresponsibility, the accused is entitled to a verdict of acquittal of crime.

Cyanid Fumigation

Fatalities have been recorded from time to time among persons engaged in cyanid fumigation. The ministry of health has had an investigation made by Dr. Richard J. Reece, the senior medical officer of the branch concerned with port sanitary administration. He visited the United States and also made inquiries in Holland and other European countries. He has presented a report in which he concludes that, whatever precautionary regulations are made, the safety of persons engaged in cyanid fumigation on board ship can be insured only by using a fumigating machine scientifically designed with full knowledge of the difficulties to be overcome. As the efficiency of cyanid fumigation for the destruction of rats and other vermin, the report leaves no doubt. But the law of diffusion of gases, and experiments carried out, point to the conclusion that the complete mixing of two gases by diffusion is a matter, not of minutes, but of hours. Analysis of samples of gas taken in different parts of a ship at various times during fumigation show that diffusion may be incomplete and that for thorough fumigation of large spaces it may be necessary either to increase the number of points at which the gas is generated or to arrange for artificial circulation. As diffusion is slow, the clearing of a ship from gas must depend almost entirely on the movement of air currents in the manner of ordinary ventilation. In certain circumstances it might be very difficult to clear the gas by natural ventilation without the use of fans, and pockets of gas might remain for many hours or even days in the lower part of the ship. It is therefore necessary to test the progress of ventilation systematically by means of rats or other methods, and it is dangerous to assume that a certain number of hours is sufficient for clearing under all conditions.

Comparative Death Rates and Infant Mortality

In reply to a question, the minister of health has given the following figures, which show how much we are in advance of other European countries:

Death Rate and Infant Mortality Rate of England and Wales and of Four Continental Nations

	1918	1919	1920	1921
England and Wales:				
Death rate	17.6	13.7	12.4	12.1
Infant mortality rate	97	89	80	83
Germany:				
Death rate	24.9	15.5	15.0	——
Infant mortality rate	154	121	131	134
Spain:				
Death rate	33.0	22.7	23.0	21.1
Infant mortality rate	183	156	165	147
France:				
Death rate	22.0	19.3	17.3	17.7
Infant mortality rate	140	123	99	115
Austria:				
Death rate	26.5	20.5	18.9	16.9
Infant mortality rate	193	156	147	

Research Expedition to Samoa

An important research expedition, arranged by the London School of Tropical Medicine to study in Samoa the prevention of filariasis and associated conditions, especially elephantiasis, has left England en route for New Zealand via Panama. The leader is Dr. P. A. Buxton, a physician and well known entomologist, and he is accompanied by G. W. Hopkins of Downing College, Cambridge. In New Zealand they hope to add to the expedition one or two medical students, who will be given the opportunity of studying under the best tutelage some of the problems which their government has to face in connection with its mandate over Samoa. The expedition hopes to demonstrate that the infection of man by the mosquito carrier of the filaria can be prevented by clearing away all the undergrowth round the masses of coconut palms, destroying the broken shells, thrown on one side in making copra, which harbor water, and by destroying the rhinoceros beetle, which drills into the trees, making holes that retain moisture in which the mosquito breeds. The natives will meanwhile be supplied with water from uncontaminated cisterns. Elephantiasis is l [illegible] the apathy and lack of initiative of necessary the introduction of Chinese and Indian labor. The influenza epidemic carried off nearly a third of the people of Samoa; tuberculosis is increasing, and measles usually is fatal. All these problems are to be studied by the expedition, as well as the dysentery epidemic, which has been severe this year. It is hoped to arrange for the training of two or three women in each village in infant welfare work. Especially important will be the researches, hardly ever undertaken, into the effect of high atmospheric temperature and moisture on Europeans. Dr. Buxton also hopes to study the birds of Samoa and bring home a didunculus, a relative of the extinct dodo, which still survives in one area. A careful selection of entomological specimens will also be made.

PARIS

(From Our Regular Correspondent)

Nov. 23, 1923.

The Activities of the Optical Institute

Before the war, France was dependent on importation for its optical instruments, and Germany supplied 70 per cent. of our needs: The consequence was that, in 1914, the French optical instrument industry was not in a position to keep up with the heavy demand for optical instruments needed for national defense by the army. Impelled by necessity, France succeeded in organizing, in the midst of the war, an intensive production of instruments of precision. The geographic service of the army served as a clearing house for army orders, and in turn coordinated the efforts of the French manufacturers and distributed the orders among them. Thus the monthly production of optical lenses was increased from 4,000 kilograms in 1914 to 12,000 kilograms in 1918, or about 80 per cent. of the total production of the allies, a good result in view of the hasty character of the preparations. But a more stable organization was needed in order that France might manufacture instead of import the instruments for laboratories, factories and workshops. Convinced of this necessity, a group of leaders in science and industry, headed by M. de Gramont de Guiche, began to agitate for the creation of an optical institute to supply the optical industry with engineers and technically trained workmen, and to offer to manufacturers, when needed, the aid of its scientists and laboratories. Thus was created the Institut d'optique théorique et appliquée, the beginnings of which were announced in previous letters (THE JOURNAL, Sept. 20, 1919, p. 925, and May 8, 1920, p. 1339). At present, this institute is functioning very successfully. It is located at Boulevard du Montparnasse, No. 140; but, as it is crowded for space in its present quarters, plans have been drawn for a Maison d'optique, specially adapted to the needs of such an institute; it will contain ample lecture rooms and laboratories, and a library and archives, where students from all countries will be able to secure the information on theory and technic in the field of optics. As site for the new building, the city of Paris has donated an area of 2,700 square meters, at the corner of rue de Sèvres and boulevard Pasteur, and the national government has contributed a large subvention toward the cost of construction.

The optical institute comprises: (1) a technical school of optics, the purpose of which is to train engineers for optical industries; (2) services for the direct use of manufacturers; more particularly, the library and the laboratories; (3) a technical school for training skilled workmen employable, on leaving the school, in the manufacture of optical lenses and optical instruments of precision.

The library receives now most French and foreign periodicals devoted, either wholly or in part, to optics. With the approval of the syndicate that stands back of the manufacturers of optical instruments and instruments of precision, a monthly organ, the *Revue d'optique théorique et instrumentale*, was founded in 1921. The financial management of this review is entirely independent of outside control, but the institute supports it through the collaboration of its personnel and the services of the library. The optical institute benefits in that the journal is a medium for the publication of research and makes exchanges with various other publications, which serve to enrich the library.

The laboratories serve a threefold purpose: for the practical training of students; for research undertaken by the personnel of the institute, and for investigations or verifications required by manufacturers.

The Army Medical Department

As mentioned in a previous letter (THE JOURNAL, April 15, 1922, p. 1140), the army medical department is passing through a critical stage in its development. Many members of the army medical corps are being forced to resign or are being placed on the nonactive list. Their places are not being refilled. The number of applicants is constantly diminishing, as is shown by the accompanying table.

Recruiting in the Army Medical Corps

Years	Places Open to Competitive Examination	Number of Candidates Enrolled	Number of Candidates Accepted
1919	200	196	166
1920	200	225	158
1921	200	131	101
1922	150	149	88

In a report to parliament recently made by the Army Commission, M. Adrien Constans dwells on the disadvantages of this situation. The regimental service as it was organized before the war, with a physician in charge of each body of troops, has had to be abandoned. A garrison medicosurgical service has been substituted, which requires less personnel, several bodies of troops being assigned to one physician or surgeon. A military physician, no matter how devoted he may be to his duties, cannot be expected to attend to his services in a satisfactory and efficient manner if he is compelled to "scatter his energy" over several bodies of troops, which are sometimes garrisoned at long distances from one another. Overburdened by a multitude of duties, he is no longer able properly to perform any, and his work is inclined to become superficial where it ought to bear the character of continuity and thoroughness. Young military physicians who ought to serve at first in a subordinate capacity have perforce been placed in charge of important services for which they were inadequately prepared. In spite of their faithfulness and energy, they experience considerable difficulty, and at times their tasks prove insurmountable. The principal results of the new type of service are: an increase in the percentage of morbidity and a consequent undue number of sick leave furloughs; reduction in the number of effectives and delay in the instruction of the men; poor medical records and technical registers; hasty action by the exemption board; lack of supervision and care of the men on mobilization; almost complete absence of instruction of nurses and regimental litter bearers.

The draft of the law pertaining to the constitution of the staffs and the number of the effectives provides for the army medical corps a diminution of 121 in the average number of effectives (2,249 physicians, in place of 2,370).

Statistics on Welfare Work

M. Paul Strauss, minister of public health, charities and social welfare, has just addressed a circular letter to the prefects of the departments in regard to the progress being made by charity, welfare and public health societies. It appears from this document that the number of hospitals and municipal shelters in France exceeds 1,860. There are, in addition, 82 public or private psychopathic hospitals and 12 municipal centers serving as public asylums, 22,000 bureaus of charity, 170 municipal bureaus of public health, 460 antituberculosis dispensaries, 57 public sanatoriums, 67 private sanatoriums, 61 preventoriums, 222 antivenereal consultation centers, 388 subsidized charitable organizations, 1,459 subsidized societies for the protection of mothers and infants (consultation centers for infant care, free milk stations, crèches, etc.), 150 housing bureaus, 627 societies for the betterment of housing conditions, and 27,756 friendly or mutual aid societies.

Prizes Awarded by the Academy of Sciences

Among the prizes and grants awarded by the Academy of Sciences, the Chaussier prize of 10,000 francs in medicine and surgery has been awarded to Dr. Justin Jolly, director of the histologic laboratory of the Ecole pratique des hautes études of the Collège de France, for his histologic researches, and to Dr. Maurice Nicolle, professor at the Pasteur Institute, for his researches in bacteriology; the Bréant prize of 5,000 francs has been given to Dr. Robert Sazerac, laboratory director, and to Dr. Constantin Levaditi, department head, of the Pasteur Institute, for their researches on the treatment of syphilis; the Barbier prize of 2,000 francs has gone to Dr. Fontoymont, director of the Ecole de medicine indigène of Tananarive (Madagascar).

Regulations for Crèches

In a previous letter I referred to an investigation of crèches and the desiderata that this inquiry brought to light (THE JOURNAL, Sept. 22, 1923, p. 1035). M. Paul Strauss, minister of public health and social welfare, has submitted to the president of the republic for approval and signature a decree designed to improve conditions in connection with the creation and functioning of public and private crèches. It is provided that crèches must not admit children who are ill, and that for children between 2 and 3 years old parents may have the choice of the crèche or the school for mothers (*école maternelle*), when both exist in the locality. A crèche closed on account of an epidemic may not be reopened until the prophylactic measures ordered by the prefect have been carried out. Among the new provisions may be mentioned the absolute prohibition of beds in certain places; the complete separation of the crèche from the consultation bureaus for infant care; the exaction of special sanitary guarantees, not only with respect to the salaried personnel of the crèche but also in regard to visitors who, for benevolent reasons, come to show their interest in the cause or to take a practical course in puericulture. When anywise feasible, the cradle rooms should be separate and distinct from the rest of the crèche; if possible, with an arrangement allowing the surveillance of the infants through a glass partition. Children able to walk should be separated from others. Absolutely free care may be accorded only when the mother's complete dependence can be shown. The mother shall not be regarded, by reason of the modest sum that she pays, as a mere assistant but rather as a partner in the care and attention that her child receives.

Death of Prof. Edouard Meyer

Dr. Meyer, professor of physiology and dean of the medical faculty of the University of Nancy, has died at the age of 63. Meyer was born at Lauterbourg (Bas-Rhin), April 6, 1860. He graduated in medicine at the University of Lille in 1886. He became agrégé professor in 1889, but left Lille in 1891 to take a position as instructor in physiology in the University of Toulouse. Three years later he became professor of physiology in the University of Nancy. In 1913 he succeeded Professor Gross as dean of the medical faculty, which office he held up to a short time before his death.

BUCHAREST

(From Our Regular Correspondent)

Nov. 10, 1923.

Medical Conditions in Southern Bosnia

Sanitation in the northern part of Bosnia leaves nothing to be desired even by a western man. But conditions are different in the southern part of the province. Here, and particularly *in the vicinity of the southern boundary*, where the population is mainly Turkish, health conditions are far behind those in the northern districts. The people here have no confidence in doctors; they prefer to be attended by the "hodzsas" (a kind of "medicine men"), who do not need to see patients daily, and usually see them only once, after which the patients either die or recover. The Turkish hodzsa needs no suggestive apparatus for the practice of his calling, as those who ask his aid are under the influence of omens and auguries, and are dominated by the mysticism that veils the person of the hodzsa, the prophet of Allah. None but a Mohammedan may consult him; the patient is bound to the strictest secrecy. He is told that the hodzsa is the representative of Allah, and can put curses on his enemies as well as blessings on those who obey.

VISIT TO A MEDICINE MAN

At Plevlje there are many foreigners traveling to Constantinople; here the secrecy of the hodzsa breaks down before the temptation of gold, and foreigners occasionally enter. The hodzsa showed his consulting rooms, the most striking feature of which was his seat. This was a comfortable lean-to foot-stool, surrounded by the finest Turkish and Persian rugs, on which he sits with crossed legs. In front of him is the Koran, which is the storehouse of his science and knowledge. Around him are jars, filled with various herbs, plants and also animals; frogs, cats and dogs are important occupants of the hodzsa's drug store.

A Turkish woman came with a baby, aged 2, whose face was shrunken and wrinkled, like that of a person of 60, owing to the administration of opium by the mother to soothe the child whenever it cried. The mother stated that the child must be bewitched; for two weeks it had had fits of suffocation, with coughing and restlessness. The gray headed hodzsa consulted the Koran, and for a while studied in silence. Then he bade the woman call again on the morrow, bringing with the child an oka (a Turkish measure of weight) of flour, and a female cat, aged 7 weeks. In the meantime she should think continually on Allah. On the morrow woman and child came. Before the foot-stool of the hodzsa was set a great rug, on which were laid, on the right side, the flour in a brass jar, and on the left side the kitten in a cradle-like cage, looking like a tiger cub. Between the two was placed the child. Again the Koran was consulted; the hodzsa then took some herbs from a jar out of the cupboard and, taking the flour, kneaded a cake with a dexterity that might put to shame even the most skilled of French cooks. After making some signs over the child's head, he gave the cake to the cat, which devoured it with great relish. The hodzsa then took the cat out of the cage, whereon it soon began to moan, jumped hither and thither, shook itself to the right, then to the left, suddenly collapsed, and was dead. Then the hodzsa lifted up the baby from the rug, and declared that the cure was finished. The mother shouted for joy, for the cure had succeeded; the illness of her baby had wandered into the cat and killed it. The hodzsa then stated that the child must recover within a few weeks.

After the departure of the woman an old man came in, whose face spoke of suffering. The hodzsa gave him a leaf from his treasury of knowledge, the Koran, to swallow in water. The swallowing of pages from the holy book is frequently practiced here. People do it even without "medical" advice.

SPECIFIC THERAPY

It may be of interest to mention certain popular customs in regard to the treatment of particular diseases. Those, who suffer from malaria must catch a croaking frog at full moon, cut it in two, and bind the anterior half around the nape of the neck; then all will be well. Cripples and deformed children must be manipulated as follows: The patient is taken at break of day to a crossroads. The first man who passes is asked to give the child a new name; the second man who comes along baptizes it with a certain ceremony. To refuse this service is considered a great sin, and to comply is a good deed to Allah. It is believed that children who receive a second name in this way become well shaped; bent spines will straighten, and lame limbs will become corrected. Whoever carries on his person the tooth of a wolf is immune from contagious disease. Somewhat more rational is the custom of persons afflicted with some sorrow, or troubled with a bad temper, of taking castor oil. This, they believe, will make them joyful again.

On the coasts of Dalmatia, where there are as many Christians as Mohammedans, Christian beliefs have been mingled with the ancient customs in the art of healing. For example, in Ragusa and Metkovitz, on the shore of the Adriatic, it is customary, in order to protect oneself against evil spirits and witches, to await the full of the moon (this being the Turkish Hygeia), and then go in the direction of the moon until an image of the Maria Immaculata is seen. Around this one must pick up a few shellfish which abound here, take out the contents, pulverize the dry shell in a mortar, mix the powder with flour, water, salt, and red and black pepper, and then make it into a cake. By eating this cake, one acquires protection from the machinations of even the most evil minded witches.

For injuries, stabs and shot wounds, nothing excels this remedy: A sleeping dormouse is sought and, while in its deepest sleep, is stabbed to death by a single blow. The dormouse must be killed with a single blow or another dormouse must be found. Then the fat is taken out and smeared on the bleeding wound or aching part. The treatment of discharge from the ears is even more curious. Young mice are caught and cooked in table oil; they are then placed in a wooden jar on which is engraved a certain verse of the Koran. The jar is hung up in the middle of the ceiling. Earaches of minor severity may be healed in this way; but severer affections are to be cured by dropping into the ear a few drops of oil, made by melting the fat from the breast of a male rabbit; recovery is certain if this procedure is adopted after the usual evening ablutions and prayer.

FOR BELIEVERS ONLY

To deter foreigners from calling on the hodzsas for help, it is taught that remedies are effective only when adopted by true believers.

BERLIN

(From Our Regular Correspondent)

Nov. 17, 1923.

Physicians and the New Social Insurance Legislation

As was to be expected, the recent modifications in the federal social insurance law, especially that portion which deals with health insurance, which was discussed in my letter last week, have caused great excitement among physicians. Sharp protests are being published on all sides. The executive committee of the Leipzig League has issued the following manifesto: "The federal ministry of labor has promulgated several decrees which effect radical changes in health insurance legislation. Since September 1 of this year, health insurance has been badly disrupted owing to the widespread economic collapse. The benefits accorded the insured have become more and more restricted, although the capitation fees have mounted to previously unheard-of sums. The extra benefits are being abolished by many health insurance societies. Health insurance for families has been done away with. Patients must pay either wholly or in part for medicines and other therapeutic agents. Many societies demand of the insured additional payments to meet the cost of medical treatment. The largest league of health insurance societies (der Verband deutscher Ortskrankenkassen) has announced in the press that the panel physicians can no longer count on being paid for their services, and that patients, in lieu of medical treatment, are to receive cash payments from the societies. Health insurance, during recent months, has been kept up to a certain extent by the panel physicians, who have given their services almost gratuitously. Often they are paid according to the index established by the federal bureau for the previous week, instead of according to the index for the week in which the services were rendered as is the case with workingmen, employees and officials. Consequently, even the physicians whose services are most in demand receive fees reckoned in greatly depreciated currency. In recent weeks, owing to the soaring of the American dollar, a consultation fee has been the equivalent of only from 1 to 2 gold pfennigs, or less than half a cent in American money. Recent legislation introduced by the ministry of labor encroaches on the freedom of the medical profession. Physicians are therefore frequently compelled to refuse to give treatment. The executive committees of the health insurance societies can dictate to the physicians what therapeutic agents and methods of treatment they shall employ; on what basis and how long the insured are to be retained on the sick list, and whether or not and, if at all, for how long they are to be treated in a hospital. If the physicians do not conduct themselves in accordance with the demands of the health insurance societies, they can be dismissed without notice, the societies having virtually the right to declare the contracts entered into between the physicians and the societies null and void. The decision as to what physicians shall be admitted to the panel has been put into the hands of the health insurance societies. The health insurance societies may introduce the system of district physicians, establishing districts in which the insured are deprived of the choice of physician. Moreover, the societies may, on their own initiative, abolish free medical treatment, giving the patients cash payments in lieu of sick benefits. As a result of this provision, the societies have the right to relieve themselves of their legal obligations to the insured by the payment of pitiful sums, and those physicians who, in the interest of their patients, insist on using the most effective medicines and methods of treatment may be dismissed without notice. If these new decrees remain in force, in the future only such physicians will be able to serve the insured as enjoy the confidence and good will of the executive committees of the health insurance societies, but not the confidence of the insured. The medical profession holds that the privileges that are left to the insured are not of a nature to preserve the health of the people, and declares that it can no longer be responsible for a system that offers the insured so few advantages, and that it must refuse to make further sacrifices in money and the right of self-determination. What is more, the physicians are no longer in a position to make further sacrifices as, in spite of their unselfish devotion to their duties, they have been brought to financial ruin by the incompetence of the health insurance societies."

Epidemic of Infantile Paralysis

The end of August, an epidemic of infantile paralysis appeared in the district of Breslau. Last year, an epidemic was announced in Wurttemberg. Later, an outbreak occurred in the North, in the district of Cassel. Thuringia was next to suffer; afterward, Westphalia and the Rhine Province were visited, and now the infection has traveled in a northeasterly direction to Silesia. The government has demanded the enforcement, for the space of three months, of notification, isolation and supervision of cases.

Welfare Work Among Refugees from the Ruhr Region

The ejection of the families of officials and others from the Ruhr Region and the Rhine Province has made it necessary to organize welfare work on a large scale, especially in aid of the children affected. The children among the refugees not only have been given shelter and food in the unoccupied regions of Germany, but also were welcomed in the adjacent foreign territory. Some of the children were quartered in the rural sections in families; others in children's homes and in health centers. In some instances, large colonies of children have been furnished temporary quarters on former military drill grounds. They are constantly under medical supervision, and are fed as well as circumstances permit. The length of the stay in the country or in the children's homes is at least six weeks, and, when possible, from three to four months. Up to September, 270,000 children from refugees' families had been cared for in the country, and 48,000 in children's homes. The families in the country usually take care of the children free of charge, and they often provide them with clothing as well. The sojourn in children's homes costs the authorities, however, large sums. The results of this welfare work have been, in general, satisfactory. However, it remains to be seen what the final results will be. According to examinations made of 530 children, who, during the year 1922, were quartered in health centers in Mannheim, 78 per cent. of the boys and 98 per cent. of the girls showed improvement.

Tendoplasty

At the last session of the Berliner Medizinische Gesellschaft, Professor Katzenstein, director of the surgical department of the Friedrichshain Hospital, presented patients who showed excellent results from connecting paralyzed with healthy muscles. A child whose right leg was completely paralyzed became able to walk after Katzenstein had united the paralyzed muscles with the abdominal musculature. Power is brought to the paralyzed muscles through the formation of artificial tendons from human tissue. For these tendons he uses not only muscles but also strips of skin. Good success was secured in the case of patients with muscles paralyzed by gunshot wounds, and in children with infantile paralysis. The technic of the operative procedure and the results were demonstrated by films.

Marriages

William L. Vickers, Lake Arrowhead, Calif., to Miss Minnetta Chandler of Long Beach, November 6.

John Mason Hundley, Jr., Baltimore, to Miss Emily Louise Holt of North Carolina, December 1.

Bruno A. Lungmus, Milwaukee, to Miss Martha Lucille Snyder of Oconomowoc, November 22.

John Edward Mannion, Kimball, S. D., to Miss Frances E. O'Neil of Detroit, in November.

Benjamin L. Norden to Miss Mary F. Warren, both of Portland, Ore., November 17.

Gatewood to Miss Esther Lydia Harper, both of Chicago, at Los Angeles, November 28.

Walfred Johnson, Stillwater, Minn., to Miss Sophie Koelzer of Jordan, October 1.

James Russell Driver to Miss Julia Ingram Davies, both of Cleveland, December 1.

Herbert William Salter to Miss Charlotte Benjamin, both of Cleveland, October 27.

Lewis T. Baxter to Miss Esther Bauchet, both of Chicago, November 9.

Deaths

Walter Fritz Winholt ⊕ Chicago; Rush Medical College, Chicago, 1913; member of the Chicago Pediatric Society; assistant professor of medicine and pediatrics at his alma mater; medical director of the Chicago Infant Welfare Society; served in the M. C., U. S. Army, during the World War; on the staffs of the Cook County Hospital and the Presbyterian Hospital, where he died, December 9, of chronic nephritis and heart disease, aged 35.

James Cheston Morris, West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1854; examiner and lecturer at his alma mater, 1855-1863; at one time curator of the American Philosphy Society; director of the biologic and microscopic department of the Philadelphia Academy of Natural Sciences; Civil War veteran; aged 92; died, November 29, of heart disease.

Arthur Nichols, St. Louis; Medical Department of Columbia College, New York, 1888; formerly professor of obstetrics at the St. Louis University School of Medicine and the Washington University Medical School; for ten years on the staff of St. Ann's Hospital Maternity Hospital; aged 57; died, November 22, following a long illness.

Edwin James Kennedy, Tiskilwa, Ill.; Ohio State University College of Medicine, Columbus, 1908; served in the M. C., U. S. Army, in France, during the World War; aged 48; died, November 19, at the Presbyterian Hospital, Chicago, following an operation for carcinoma of the rectum.

David Samuel Hachen, Cincinnati; University of Cincinnati College of Medicine, 1920; instructor of medicine at his alma mater; on the staff of the Cincinnati General Hospital, where he died, November 23; aged 27, of encephalitis, subsequent to an attack of streptococcus sore throat.

Wallace Winfield Potter, Seattle; Bellevue Hospital Medical College, New York, 1871; Medical School of Maine, Portland, 1871; formerly health officer of Spokane, Wash.; aged 74; died, November 17, at a local hospital, of a skull fracture, received when struck by an automobile.

James Floyd Bowman ⊕ Irvington, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; on the staff of the New York Eye and Ear Infirmary; aged 44; jumped to his death from the ninth floor of the Municipal Building, New York City, November 28.

Jewell Arthur Newman ⊕ Colorado Springs, Colo.; Medical Department of the Tulane University of Louisiana, New Orleans, 1911; formerly on the staff of the Cragmor Sanatorium; aged 37; died, November 19, at Los Angeles, of pulmonary tuberculosis.

Robert Wynne Horton ⊕ Captain, M. C., U. S. Army, Fairfield, Ohio; University of Texas Department of Medicine, Galveston, 1899; served during the World War; aged 45; died, November 15, at Wilbur Wright Field, Dayton, Ohio.

Stephen W. Stafford, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1899; formerly on the staff and superintendent of the Charity Hospital; aged 50; died, December 3, of cerebral hemorrhage.

William Moody Parsons, Manchester, N. H.; Vermont Medical College, Woodstock, 1852; member of the New Hampshire Medical Society; formerly member of the board of health; aged 97; died, November 19, of pneumonia.

Elza Wyatt Burris, Indianapolis; Medical College of Indiana, Indianapolis, 1903; member of the Indiana State Medical Association; for many years president of the Citizens' State Bank; aged 48; died suddenly, November 20.

John S. Beers, St. Joseph, Mich.; Chicago (Ill.) Medical College, 1878; past president of the Berrien County Medical Society; formerly state senator and member of the city council; aged 77; died, November 18, of paralysis.

Charles Joseph Gross, Montreal, Que., Canada; Montreal School of Medicine and Surgery, 1907; served during the World War, in France, with the Canadian Army Medical Corps; aged 42; died recently, of heart disease.

James Lewis Miller, Jr., Sierra Madre, Calif.; Ensworth Medical College, St. Joseph, Mo., 1908; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 36; died, November 12, of tuberculosis.

Charles Wesley Astrop, Surry, Va.; Medical College of Virginia, Richmond, 1884; member of the Medical Society of Virginia; aged 65; died, November 20, at the Tucker Sanatorium, Richmond, following a long illness.

Edward Francis Brennan ⊕ New York; New York University Medical College, 1896; on the staff of the Bronx Eye and Ear Infirmary; aged 56; died suddenly, November 29, at Larchmont, of cerebral hemorrhage.

Edgar Douglas, Halifax, N. S., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; served during the World War, in France, with the Canadian Army Medical Corps; aged 45; died, October 7.

James W. Campbell, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1891; formerly professor of medicine and therapy at his alma mater; aged 57; died, October 11, of septicemia.

Frank A. Warren, Tekonsha, Mich.; Detroit Homeopathic Medical College, 1875; aged 72; died, November 17, at the Wade Memorial Hospital, Coldwater, of injuries received when struck by an automobile.

Arthur William Calloway ⊕ Asheville, N. C.; Chicago (Ill.) Homeopathic Medical College, 1895; aged 51; was found dead, December 5, with a bullet wound in the chest, presumably self-inflicted.

Samuel Carson McCormick, Duluth, Minn.; Jefferson Medical College of Philadelphia, 1862; Civil War veteran; at one time health officer and county physician; aged 86; died, November 17, of senility.

Albert Louis Ream ⊕ Chicago; Chicago Medical School, 1915; served in the M. C., U. S. Army, during the World War; aged 48; died, December 9, at the Wesley Memorial Hospital, of uremia.

Henry Herr, Washington, Ind.; Miami Medical College, Cincinnati, 1894; member of the Indiana State Medical Association and the city board of health; aged 58; died, November 20, of heart disease.

Joseph Ennalls Muse, Baltimore; Baltimore Medical College, 1898; member of the Medical and Chirurgical Faculty of Maryland; for six years member of the city council; aged 61; died, November 16.

Harrison Burgess Savage, Joplin, Mo.; Bellevue Hospital Medical College, New York, 1886; member of the Kansas Medical Society; aged 60; died, November 15, following a long illness.

David Richardson Beaver, Conshohocken, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1864; Civil War veteran; aged 81; died, November 17, of bronchopneumonia.

I. Willard Rayburn, San Diego, Calif.; Long Island College Hospital, Brooklyn, 1877; Civil War veteran; formerly a practitioner in Indiana; aged 77; died, November 19, of paralysis.

Eleanore M. Hiestand Moore, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1890; formerly demonstrator of chemistry at her alma mater; died, November 29.

Samuel G. Edwards, Los Angeles; Medical College of Ohio, Cincinnati, 1893; member of the California Medical Association; aged 55; died, November 11, following a long illness.

Leroy Stahl Kennedy, Hot Springs National Park, Ark.; Louisville (Ky.) Medical College, 1905; aged 49; died, October 21, at Mount Ida, of carcinoma of the stomach.

Leonard Edwin Gallup, Marshall, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1879; aged 72; died, November 11, of paralysis.

William C. McReynolds, Wyaconda, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 75; died, October 30, following a long illness.

James Harvey Bogle, Sebring, Fla.; College of Physicians and Surgeons, Baltimore, 1893; formerly a practitioner in Virginia; aged 55 died, November 10.

Walter Tate Willis, Williston, S. D.; University of Maryland School of Medicine, Baltimore, 1889; aged 63; died, October 14, following a long illness.

Charles Albert J. Lignot, Jersey City, N. J.; Medical Department of the University of the City of New York, 1876; aged 73; died, October 2.

Malachi A. Carriker, Nebraska City, Neb.; Eclectic Medical Institute, Cincinnati, 1885; aged 75; died, November 7, at Kansas City.

Frank H. Knickerbocker ⊕ Staples, Minn.; Detroit (Mich.) Medical College, 1879; aged 66; died in November.

Hugh Hanna, Donegal, Pa. (years of practice); aged 85; died, October 21, of senility.

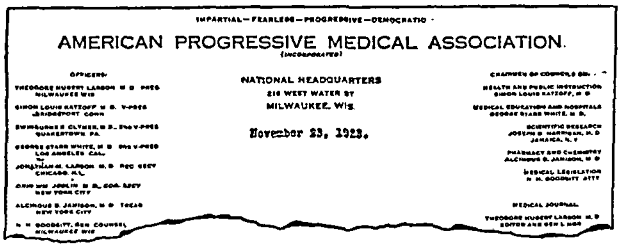
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature.

THE AMERICAN PROGRESSIVE MEDICAL ASSOCIATION

Another Attempt to Organize the Twilight Zone of Professionalism

From various parts of the country The Journal is receiving requests for information about a new medical organization calling itself the "American Progressive Medical Association" and having its "National Headquarters" at Milwaukee, Wis. Physicians are receiving letters and application blanks from the "President" of this new society urging them to send in *their application for membership and the annual membership* fee of $5.00. According to the letterhead of the American Progressive Medical Association, which, by the way, is *said* to be incorporated, this organization is "Impartial—Fearless—Progressive—Democratic." It has a President, three Vice-Presidents, a Recording Secretary, Corresponding Secretary, a Treasurer and a General Counsel—to say nothing of an Editor and General Manager of its medical journal, the letter, apparently, not yet born. It has a "Council on Health and Public Instruction," a "Council on Medical Education and Hospitals," a "Council on Scientific Research," a "Council on Pharmacy and Chemistry," a "Council on Medical Legislation," 'n ever'thing!


IMPARTIAL—FEARLESS—PROGRESSIVE—DEMOCRATIC

AMERICAN PROGRESSIVE MEDICAL ASSOCIATION

NATIONAL HEADQUARTERS

MILWAUKEE, WIS.

November 23, 1923.

Letterhead of the "American Progressive Medical Association."

Applicants for membership must "agree and stipulate" that they will give their "moral support to Progressive Therapeutics." Furthermore, they "agree to stand firm for National Reciprocity for all Licensed Physicians without examination or any RED TAPE."

When physicians ask The Journal, as some have, to inform them as to the "standing of the American Progressive Medical Association," they are asking for the impossible because the Association has not yet been in existence a month. The best The Journal can do is to publish what material it has *regarding the founders and officers of this new organization. From this material any physician should be able to determine* whether or not he wishes to be associated with an organization so fathered. Here it is:

THE PERSONNEL

Theodore Hubert Larson, M.D., Milwaukee, Wis., *President, Editor* and *General Manager:* According to our records, this man was born in 1871 and claimed a diploma, dated 1901 from the National Medical University of Chicago, a "sundown" institution now extinct. We have been unable to verify this claim. It was nothing to be proud of, in any case. In 1912 Larson received a diploma from Bennett Medical College, Chicago. He was licensed in Oklahoma in 1902 and in Wisconsin in 1911. Larson seems to have been in a good many places before settling down in Milwaukee: Oklahoma City, Cushing and Tulsa in Oklahoma; Fort Dodge, Iowa; Chicago, Illinois, and Edgerton, Waupaca, Weyauwega and Oshkosh in Wisconsin. We have in our files some clippings from the Sioux City, Iowa, papers of about twelve years ago recording the arrest of T. H. Larson on a warrant charging him with practicing medicine without a license. According to one of the clippings:

> "Dr. Larson . . . admitted that he had no license to practice here, and said he came here for the sole purpose of manufacturing medicine. One of his remedies was said to have been a blood purifier."

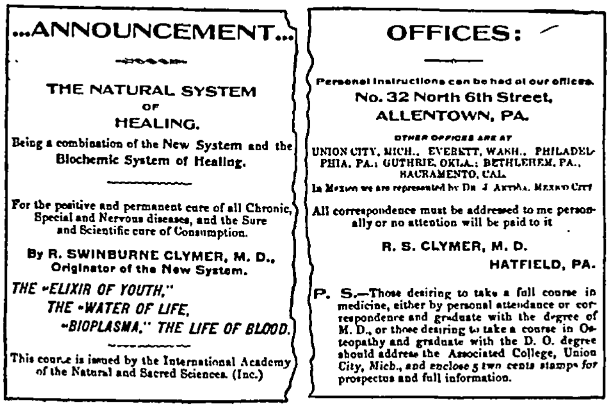
Later clippings show that this charge was dismissed and he was rearrested on the charge of being a fugitive from justice. We have no record of the outcome of this case.

Newspapers published last June reporting the convention of the National Eclectic Association stated that that organization was "seething with dissension" over a "clinic gland transplantation performed earlier in the day by Dr. T. H. Larson of Milwaukee." According to the reports Larson was scheduled to read a paper on gland transplantation and illustrated it with an actual operation. "The patient was a woman thirty-three years old and the glands used in the transplantation were taken from a goat." Larson claims to limit his practice to abdominal surgery.

Simon Louis Katzoff, M.D., Bridgeport, Conn., *First Vice-President* and *Chairman of the Council on Health and Public Instruction:* According to our records, Katzoff was born in 1890 and was granted a diploma in 1912 by the Georgia College of Eclectic Medicine and Surgery of Atlanta. He was licensed by the Eclectic Board of Georgia in 1912 and by the Eclectic Board of Connecticut in 1916.

We have in our files an article that appeared in the October, 1911, issue of an advertising sheet, the *American Journal of Mechano-Therapy,* a house-organ for a correspondence concern, the American College of Mechano-Therapy, exposed in The Journal, Aug. 28, 1909. The article was on "Constipation" and is headed: "By Dr. Simon L. Katzoff." Katzoff had not graduated at the time this appeared. The article itself is not worth discussing.

We also have in our files a clipping from the Bridgeport (Conn.) *Times* of Nov. 15, 1919. The clipping is of an article entitled "What is Vivisection?" and alleged to be written "By Simon Louis Katzoff, A.M., M.D., Author of 'Timely Truths on Human Health.'" The article is of the antivivisection type and contains the usual number of misstatements to the running inch. Katzoff has also written a book "Timely Truths on Human Health." It is published by the Cooperative Publishing Company, Inc., Bridgeport, Conn.



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In Mexico we are represented by Dr. J. Arteaga, Mexico City

All correspondence must be addressed to me personally or no attention will be paid to it

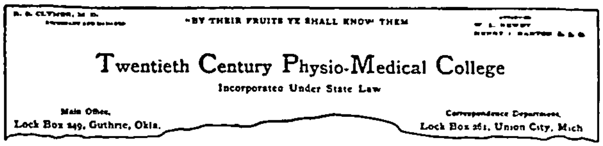
R. S. CLYMER, M. D.
HATFIELD, PA.

P. S.—Those desiring to take a full course in medicine, either by personal attendance or correspondence and graduate with the degree of M. D., or those desiring to take a course in Osteopathy and graduate with the D. O. degree should address the Associated College, Union City, Mich., and *enclose 5 two cents stamps for* prospectus and full information.

R. Swinburne Clymer is "Second Vice-President" of the "American Progressive Medical Association." Our records fail to show that he was ever graduated by a reputable medical college. Clymer's activities have been many and various. Here is reproduced (in miniature) the covers of a booklet used by Clymer in exploiting two of his schemes: "The Natural System of Healing" and the "Associated College," which granted the degree of "M.D." on the mail-order plan.

R. Swinburne Clymer, M.D., Quakertown, Pa., *Second Vice-President:* Our records fail to show that this man was ever regularly graduated by any reputable medical college. In a paid notice that appeared in Polk's Medical Directory for 1906, Clymer claims the degrees of "Ph.G." and "M.D." He is classified as a "Physio-Medicist" and a graduate of the "Independent Medical College," Chicago, 1898. The Independent Medical College was a diploma mill which sold diplomas to any one who sent the cash. It was finally declared a fraud by the federal authorities and put out of business. In Polk's directory for 1908 Clymer is listed as an "Electro-Therapeutic Specialist." In the same directory for 1912 he is given as a graduate of the College of Medicine and Surgery, Chicago, 1911. Correspondence with a one-time officer of this extinct school brought the statement that in 1911 Clymer "was granted an *ad eundem* diploma"!

In 1903, Clymer was "Secretary and Manager" of the "Twentieth Century Physio-Medical College" a diploma mill whose "Main Office" was a post-office box in Guthrie, Okla., and whose "Corresponding Department" was a post-office box at Union City, Mich. Letters written to Clymer at Union City, Mich., were answered by him on stationery bearing the same address but mailed from Hatfield, Pa. Through the efforts of The Journal (see issue of Oct. 1, 1904, p. 990) the post-office department attempted to get a case on this fraud but Clymer discovered that the thing was being investigated and dropped that line of endeavor. However, the charter of the "college" was cancelled by the state of Oklahoma in 1904. The name of Henry J. Barton, of whom more later, appeared on the stationery of the "college" as one of its attorneys.



"BY THEIR FRUITS YE SHALL KNOW THEM

Twentieth Century Physio-Medical College
Incorporated Under State Law

Main Office,
Lock Box 249, Guthrie, Okla.

Correspondence Department,
Lock Box 261, Union City, Mich

The "Twentieth Century Physio-Medical College" was another scheme of R. Swinburne Clymer's. It was a dip'oma mill which did business from a post-office box in Guthrie, Okla., and a post-office box in Union City, Mich. Clymer, meanwhile, lived in Hatfield, Pa.

In 1904, R. Swinburne Clymer conducted from Hatfield, Pa., and Union City, Mich., "The International Academy of the Natural and Sacred Sciences" and at the same time exploited the "Elixir of Youth," the "Water of Life" and "Bioplasma." The "International Academy of the Natural and Sacred Sciences" offered a "course" in the "Natural System of Healing" which proposed to enable those taking the courses to "treat every known disease." Instruction was given on the mail-order plan and the degrees of "M.D." and "D.O." were granted. At the same time Clymer had offices at Allentown, Pa. Those who wanted to take the "course" were told to "address the Associated College, Union City, Mich.," and obtain a "prospectus and full information."

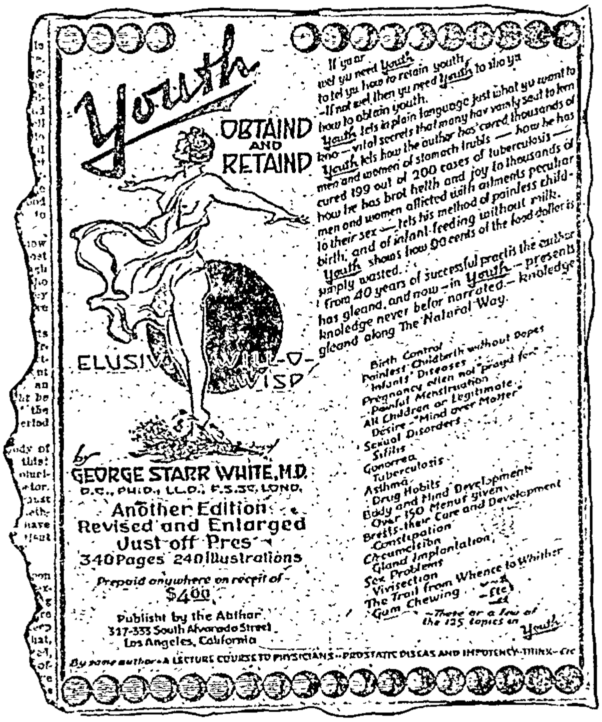
In this connection, it is of interest to refer to a fraud order that was issued by the United States postal authorities against "The Philosophers of the Living Fire" with which R. S. Clymer was connected. It was operated from Union City, Mich., the "home" of Clymer's "Associated College." The scheme consisted in obtaining money for membership in this alleged society for "degrees" in the "society." The government investigated and found that the degrees were "simply devices for obtaining additional sums of money from credulous persons." The "Philosophers of the Living Fire" was supposed to be a quasi-religious, secret order with signs, grips, obligations, passwords and similar paraphernalia. Henry J. Barton, already referred to in connection with the "Twentieth Century Physio-Medical College," was head of the concern and was known as the "Reverend Supreme Grand Rabboni." In October, 1905, the Philosophers of the Living Fire were extinguished by the fraud order which covered not only Barton but "Dr. R. S. Clymer." The fraud flared up again in 1917 and was again extinguished by a second fraud order which again covered the name of "Dr. R. S. Clymer."

A testimonial credited to R. S. Clymer from Souderton, Pa., appears in the advertising matter issued by the "Institute of Physicians and Surgeons" of Rochester, N. Y. It is to the effect that he has received the diploma from this "institute" and "It is in every respect equal to my medical or hospital diplomas." It doubtless was. The "Institute of Physicians and Surgeons" was a mail-order swindle that was put out of business by the federal authorities July 21, 1905. (See "Nostrums and Quackery," Vol. I, page 407.)

In 1910, R. Swinburne Clymer was exploiting the "International System of Magnetic (Alchemic) Thera ties."

Advertisements were published stating that R. S. Clymer had obtained a patent from Washington for an apparatus for the magnetic treatment of diseases and that a company was "being formed by Dr. Clymer and some others interested." This venture was an outgrowth of an earlier scheme known as the "International System of Direct Medication."

Some of the later activities of Clymer concern another organization, the "Rosicrucian Aid" conducted from "Beverly Hall," Quakertown, Pa. One of the numerous activities of this organization was that of issuing a book on dietetics which is credited to "R. Swinburne Clymer, College of Medicine and Surgery, 1902." It will be remembered that Clymer has claimed graduation in the medical directories from the College of Medicine and Surgery, 1911. We have in our records still other information regarding Clymer of a more personal character, which need not be gone into at this time.



If yu ar
wel yu need Youth
to tel yu how to retain youth,
—If not wel then yu need Youth to sho yu
how to obtain youth.
Youth tels in plain language just what yu want to
kno—vital secrets that many hav vainly sout to learn
Youth tels how the author has cured thousands of
men and women of stomach trubls — how he has
cured 199 out of 200 cases of tuberculosis —
how he has brot helth and joy to thousands of
men and women aflicted with ailments peculiar
to their sex — tels his method of painless child-
birth, and of infant-feeding without milk.
Youth shows how 90 cents of the food dollar is
simply wasted.
From 40 years of successful practis the author
has gleand, and now — in Youth — presents
knoledge never befor narrated — knoledge
gleand along The Natural Way.

Birth Control
Painless Childbirth without Dopes
Infants' Diseases
Pregnancy often not "prayd for"
Painful Menstruation
All Children are Legitimate
Desire — "Mind over Matter"
Sexual Disorders
Sifilis
Gonorrea
Tuberculosis
Asthma
Drug Habits
Body and Mind Development
Over 150 Menus given
Breasts — their Care and Development
Constipation
Circumcision
Gland Implantation
Sex Problems
Vivisection
The Trail from Whence to Whither
Gum Chewing — Etc.
— These are a few of the 125 topics in Youth

by GEORGE STARR WHITE, M.D.
D.C., PH.D., LL.D., F.S.SC. LOND.
Another Edition
Revised and Enlarged
Just off Pres
340 Pages 240 Illustrations
Prepaid anywhere on receipt of — $4.00
Publisht by the Author
317-333 South Alvarado Street
Los Angeles, California

By same author — A LECTURE COURSE TO PHYSICIANS — PROSTATIC DISEASE AND IMPOTENCY — THINK — etc

Reproduction, greatly reduced, of a typical advertisement of George Starr White, "Third Vice-President" and chairman of the "Council on Medical Education and Hospitals" of the "American Progressive Medical Association." White claims in this advertisement to have had "40 years of successful practice." Actually he graduated in medicine in 1908 when he was 42 years old. White also sells a "patent medicine."

George Starr White, M.D., Los Angeles, Cal., *Third Vice-President* and *Chairman of the Council on Medical Education and Hospitals:* According to our records, George Starr White was born in 1866 and obtained a diploma from the New York Homeopathic Medical College and Hospital in 1908 when he was forty-two years old. Ever since his advent in the medical field White seems to have been interested in various medical fads and fakes. For a while it was "Spondylotherapy" then "Zonetherapy" and still later a new brand of diagnosis "Bio-Dynamo-Chromatic Diagnosis." In 1915 he advertised that he was giving "courses" in Spondylotherapy in various cities and in the advertisement emphasized that he was a member of the American Medical Association. He is no longer a member as he was expelled from membership in the Los Angeles County Medical Association in February, 1916.

In May, 1915, White was arrested in Chicago and fined $100 and costs for violation of the Medical Practice Act. During the influenza epidemic in 1918 White put out a "patent medicine" "Valens Essential Oil Tablets" which were said to be for "Gripping the Flu out of Influenza" and were also claimed to benefit or cure incipient tuberculosis, hay-fever, and some other things.

White tacks the letters "F.S.Sc., Lond." after his name. They mean "Fellow of the Incorporated Society of Science, Letters and Arts of London, Ltd." This is a serio-comic fake; the fellowships cost one guinea ($5.00). Not a few "patent medicine" exploiters in the United States are "Fellows." George Starr White was an active official in another "twilight zone" society, the "Allied Medical Associations of America." White was also the State Vice-President of California of the "American Medical Liberty League," an organization of "patent medicine" quacks and faddists, devoted to the task of blackguarding scientific medicine in general and the American Medical Association in particular. White in his writings, and they are as voluminous as they are unscientific, affects phonetic spelling. In writing to The Journal about a year ago chiding it for dubbing him a disciple of Abrams, he said, more in sorrow than in anger: "I feel that yu ar honest in your statement tho, so I hav no hard feelings."

Jonathan M. Larson, M.D., Chicago, Ill., *Recording Secretary:* According to our records, Larson was born in 1873 and in 1905 received a diploma from the National Medical University of Chicago. This "university" was a low-grade school of the "sundown" variety. It is now out of existence and for some time before it went out of existence was not recognized either by the Board of Health of the state in which it operated or by the boards of the majority of the other states in the Union. L. D. Rogers, the exploiter of "Lazy Serum," the "Japanese Treatment for Tuberculosis," "Auto-Hemic Serum," etc., was the head and chief owner of the National Medical University. J. M. Larson is a disciple of the Abrams cult. He advertises in local publications that he has "secured an Abrams Oscilloclast and introduced it" into his practice. He warns the public against those who are not using the simon-pure, one hundred per cent. "Electronic Reactions of Abrams," but some imitation thereof.

Orin Wm. Joslin, M.D., New York City, *Corresponding Secretary:* According to our records, Joslin was born in 1875 and received a diploma in 1903 from the Milwaukee Medical College. Joslin seems to be a "joiner." His name appears on the program of the "American Association for Medico-Physico Research." He is credited with being a member of the "Pioneer Spectro-Chrome Therapeutic Class;" and of the "Executive Board of the American Association for the Study of Spondylotherapy." Also his name appears as indorsing the outrageous fake "Auto-Hemic Therapy" of L. D. Rogers.

Remodeled, newly furnished and equipped thruout, and really reopened for regular hospital business only two weeks ago, now practically full—WHY?

BECAUSE

We are now able to *diagnose* almost every known disease from its very beginning—and then—CURE IT.

Just recently we cured two of the worst cases of BRIGHTS DISEASE that could exist, and did it in two weeks. There is now practically no disease that stops us, or that we cannot stop.

We have the most wonderful treatment ever discovered for ECZEMA and ALL OTHER SKIN DISEASES. BIRTHMARKS quickly cured by a new method that is entirely painless. HAYFEVER and ASTHMA as well. We realize that these statements sound strong, but we believe that no one would credit us with being so short sighted as to pay for a full page in this valuable paper just to represent ourselves as doing anything that we cannot do. If you doubt us, talk with our patients cured, or try us out. If you don't doubt us, again we say try us out.

Write for our New Free Illustrated Booklet.

The Dodgeville General Hospital ORIN W. JOSLIN, M. D. Pres. and Medical Director

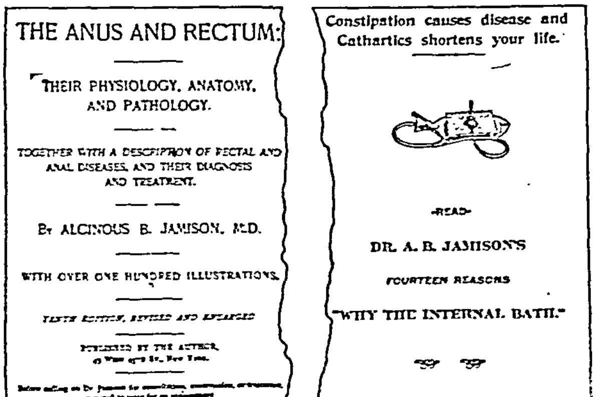
The Dodgeville General Hospital was the creation of Orin W. Joslin, the "Corresponding Secretary" of the "American Progressive Medical Association." Joslin is an advocate of various methods of treatment and diagnosis: "Auto Hemic Therapy," "Spectro-Chrome Therapy," "Bio-Dynamo-Chromatic Diagnosis," "Electronic Reactions of Abrams," etc.

Joslin practiced for some time in Wisconsin. From 1904 until 1912 he was in Milwaukee; in 1914 at Linden and in 1917 at Dodgeville. While at Dodgeville, Wis., he conducted an institution known as the "Dodgeville General Hospital" (situated over a dry-goods store) and carried on an extensive advertising campaign in the local papers. One of these advertisements, a full page affair, contained among other things, a testimonial purporting to be from a physician and puffing the Bio-Dynamo-Chromatic fake. It was repudiated by the physician in question and Joslin has practically admitted that it was fabricated.

Joslin was also "President, Medical Director and Founder" of the "Pine Grove Sanatorium" at Dodgeville, Wis. This was "for the exclusive treatment of Cancer and Tuberculosis." According to Joslin: "Our treatments for Cancer and Tuberculosis are all very pleasant to take." It seems that "the main part" of the "treatment" was the "inhalation of Condensed Mountain Air . . . Tropical Sunlight . . Alpine Sun Light . . . and the Intermittent Chromatic Radiant Ray as given to the world by Dr. George Starr White, the Wizard Scientist of Los Angeles, Calif." In addition, Joslin also employed such therapeutic marvels as "Osteopathy, Chiropractic, Zone Therapy . . . including the latest and *most wonderful of all serums known to progressive physicians* as the 'Auto-Hemic Serum' as discovered by Dr. L. D. Rogers of Chicago."

For fear, possibly, that some sufferers might be overlooked Joslin admitted that he treated other diseases and urged the sick to "Send For Free Booklet on Other Chronic Diseases." Then followed a list of "Diseases that we are particularly successful in treating." These ran through Asthma, Acne, Aneurism, Appendicitis, Burns, Birthmarks, Chorea and Coryza with Epilepsy, Fissures, Gastritis, Gout and Gray Hair, also Leucorrhea, Leukemia and Locomotor Ataxia along down the alphabet to Varicose Ulcers, Warts and Whooping Cough. For some reason he omitted Xeroderma, Yaws and Zoonosis. Altogether Orin W. Joslin seems to be a most versatile individual. No wonder he left Dodgeville, Wis., for New York City.

ALCINOUS B. JAMISON, M.D., New York City, *Treasurer* and *Chairman of the Council on Pharmacy and Chemistry:* According to our records, this man was born in 1851 and received a diploma in 1878 from the Medical College of Fort Wayne, Ind. A few years ago Jamison seems to have written a book called "Intestinal Ills" that was issued by the Tyrrell Hygienic Institute, the exploiters of a device (with a "patent medicine" adjunct) for giving rectal enemas. This was exposed in THE JOURNAL, Jan. 6, 1917: Another concern in the same line of business calling itself the Eager Colon Cleanser Company issued an advertising brochure puffing its enema and entitled "Dr. A. B. Jamison's Fourteen Reasons 'Why the Internal Bath.'"


THE ANUS AND RECTUM:

THEIR PHYSIOLOGY, ANATOMY, AND PATHOLOGY.

TOGETHER WITH A DESCRIPTION OF RECTAL AND ANAL DISEASES, AND THEIR DIAGNOSIS AND TREATMENT.

BY ALCINOUS B. JAMISON, M.D.

WITH OVER ONE HUNDRED ILLUSTRATIONS.

TENTH EDITION, REVISED AND ENLARGED

PUBLISHED BY THE AUTHOR,
[illegible]

[illegible]

Constipation causes disease and Cathartics shortens your life.

READ

DR. A. B. JAMISON'S

FOURTEEN REASONS

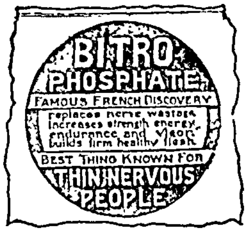
"WHY THE INTERNAL BATH."

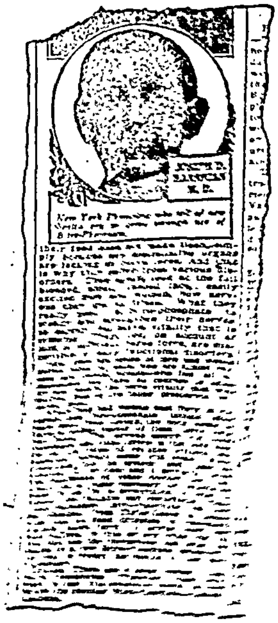
THE EAGER COLON CLEANSER COMPANY
[illegible]

Alcinous B. Jamison, "Treasurer" and chairman of the "Council on Pharmacy and Chemistry" of the "American Progressive Medical Association," seems to specialize on "Diseases of the Bowels." [illegible] are reduced reproductions of the title-pages of (1) an advertising [illegible] describing the dangers of the usual methods of treating [illegible] rectum and anus and the overwhelming superiority of the [illegible] method, and (2) of a booklet describing the "Eager Colon [illegible]

Jamison has also issued an advertising booklet [illegible] entitled "How to Become Strong." In the preface [illegible] states that he has "for thirty-six years devoted [illegible] professional time and attention to Diseases of the [illegible] This, doubtless, qualifies him for the chairmanship [illegible] Council on Pharmacy and Chemistry. [illegible] experience "enables him to speak authoritatively [illegible] the best system of treatment for [illegible]

booklet has a frontispiece showing what is presumably meant to be Jamison's office with Jamison himself giving a treatment for some rectal trouble. This is described as "The New Scientific Method of Operating upon Hemorrhoids, Fissure, Ulcer, Fistula, etc." A large part of the booklet is devoted to "scare stuff." Various surgical instruments, scalpels, scissors, cauteries, clamps, etc., are shown, and, apparently, for the purpose of impressing the victim with the dangers he will run in going to surgeons for the treatment of his ailments. The booklet also shows certain devices for giving rectal enemas and the reader is told that every purchaser of one of these devices also gets "free" a copy of Dr. Jamison's new book "Intestinal Irrigation; or 'Why, How and When to Flush the Colon.'" Finally, Jamison's name appears as "Chairman of the Section on Gastro-Enterology" of the "Allied Medical Associations."


BITRO-PHOSPHATE
FAMOUS FRENCH DISCOVERY
replaces nerve wastes, increases strength energy, endurance and vigor, builds firm healthy flesh
BEST THING KNOWN FOR
THIN NERVOUS PEOPLE


JOSEPH D. HARRIGAN M.D.

[illegible]

JOSEPH R. HARRIGAN, M.D., Jamaica, N. Y., *Chairman of the Council on Scientific Research:* According to our records, Joseph D. Harrigan was born in 1860 and received a diploma in 1883 from Bellevue Hospital Medical College. Harrigan's name appears as a member of the Advisory Board of that now extinct organization "The National League for Medical Freedom." The "league," as readers will remember, was exposed by THE JOURNAL as an organization engineered and inspired by "patent medicine" exploiters and those opposed to pure food laws. It led a hectic and turbulent existence while the money lasted and then flickered and went out. [illegible] also find the picture of Jos. [illegible] Harrigan, M.D., adorning a newspaper advertisement of "Bitro-Phosphate," a widely advertised "patent medicine." Harrigan is described in the advertisement as a New York physician [illegible] of a new [illegible] through the use of Bitro-Phosphate." [illegible]

"Joseph [illegible]

[illegible]

[illegible]

Correspondence

"CONNECTICUT INVESTIGATION OF MEDICAL DIPLOMA SCANDAL"

To the Editor:—In The Journal, November 10, you refer to the "Alexander" medical (?) school of Kansas City as "Eclectic." The Alexander school is not and never was "Eclectic," and does not claim to be such except in a very dishonest roundabout way to deceive a few who may be influenced by such claim.

Dr. Alexander of Kansas City, Mo., is not a member of the National Eclectic Medical Association, nor of the Missouri State Eclectic Medical Society, nor has he been since at Nashville, Tenn., the National Eclectic Medical Association refused to recognize his school in 1920.

The action of the so-called Eclectic Boards we deplore because they are a discredit to the profession in general and to Eclectics in particular.

We have no way of controlling the action of the legislatures of states wherein separate boards represent the various systems of practice.

Every effort was made use of to help eradicate the disreputable examining boards of the state of Florida, and we are gratified to have that stigma removed.

We have in the past and continue now to keep our records free from "disqualified" men, and assure you that no man can obtain or continue a membership with us except on the basis of graduation from a reputable school of medicine or a license to practice in the state in which he resides. A license obtained by fraud is certainly a disqualifying act, and we trust that Governor Templeton of Connecticut and Governor Hyde of Missouri, as well as Governor McRae of Arkansas, will not permit investigation to stop until every fraudulent possessor of a license to practice medicine in either of the states has his license annulled, and the holder thereof punished for his criminal conduct.

We feel that in justice to us you will give the above the same publicity accorded your recent article of above date.

William P. Best, M.D., Indianapolis.
Recording Secretary, National Eclectic
Medical Association.

"NEEDED IMPROVEMENTS IN GRADUATE MEDICAL EDUCATION"

To the Editor:—In The Journal, November 24, under the title, "Needed Improvements in Graduate Medical Education," appears a statement of the position of the Council on Medical Education and Hospitals in relation to graduate medical instruction. Such an announcement makes timely, and in fact invites, comment.

It must be borne in mind that graduate medical education is not and cannot be compulsory; that the physician, once he has obtained his license, may legally practice any branch of medicine, subject only to dictates of his conscience and his fear of malpractice suits; and that if he is to improve himself through further study, such opportunities must be offered to him as he will, himself, freely elect, even though an all-wise providence might prescribe differently. Just the reverse has been true of the process of standardization of undergraduate medical teaching. The Council, together with other similar agencies, had only to persuade the state licensing boards that certain educational requirements were desirable in order to have them enforced as law. The medical student was not asked whether he liked the ruling. If he wanted to practice, he was obliged to comply with the regulation of the board. An attempt to raise the standards of graduate medical teaching more rapidly than the medical profession becomes desirous of such changes will have exactly the opposite effect from that which is intended, for it will drive the students away from the better class of schools which adopt higher standards and cause them to flock to the poorer schools which, though less well equipped, will give them what they want.

In any consideration of graduate medical teaching, it is natural to divide the subject into two parts; namely, training for the specialist, and training for the general practitioner. While in aims and methods these two kinds of training are distinct, in subject matter they are not mutually exclusive. A rigid line of demarcation between the field of the specialist and the field of the practitioner cannot be drawn. In a city of one million inhabitants, specialists of every conceivable variety are accessible, and the sphere of the general practitioner is correspondingly restricted. In small cities, towns and villages, specialists do not and cannot exist, and therefore the sphere of the general practitioner is necessarily enlarged. It is in this zone common to both that sound judgment and wise administration are needed in order to provide both groups of graduate students the opportunities they legitimately seek.

Dr. Frank Billings, in the columns of The Journal, has stated that the family physician should be able, in 85 per cent. of the cases that come to him, to make a diagnosis without calling in a specialist. Dr. Wilbur, President of the American Medical Association, addressing the Medical Society of the County of New York, has voiced the same sentiment. To enable the profession to realize this ideal is the chief objective of postgraduate medical education. To increase the diagnostic ability of the general practitioner so that his services may be of the greatest value to the community in which he lives should be the first principle in the organization of graduate medical instruction. To this end, the opportunities for the general practitioner should be enlarged, not curtailed. Certainly, he should not be denied the opportunity to refresh his knowledge of those subjects which constitute a part of the required curriculum for undergraduates. The late Dr. Biggs may have somewhat overstated his case when he said that the average medical practitioner was fifteen years behind the times, but we all recognize that there are many members of our profession who are not equipped to give to their patients the benefit of recent advances in medical science. To remedy these deficiencies is the greatest service medical educators can render to mankind.

With regard to the ideal training of specialists, the excellent reports, compiled by men eminent in their respective fields, heretofore published in The Journal, leave little to be said, except this: that the men who wrote these reports did not, for the most part, receive their special training in the manner they now recommend. The process by which they achieved their present distinction was much slower, more arduous no doubt, but at least they had the benefit of a broad foundation of experience in general medicine. It is too early to speak confidently of the results of the proposed system of education for specialists; but one may be pardoned, perhaps, for wondering whether the short standardized course will not tend to accentuate the deplorable tendency to regard patients as "cases" of a disease, rather than as persons who are sick.

Undoubtedly there are many "half-baked" specialists who bring discredit on our profession and who are a menace to the public, and of these the greater number aspire to be surgeons. They have multiplied exceedingly in recent years coincidently with the rapid increase in the number of hospitals. Few men, I judge, are so conscienceless as to undertake a major operation without having previously wielded a knife. The dangerous amount of knowledge is secured, as a rule, in a hospital, where, as intern, one may secure in a brief time familiarity with operative technic and, too often, unwarranted self-confidence. Hospitals having a short surgical service, in many cases six months or less, are, in my estimation, the hothouses in which are bred most of our irresponsible operators.

In view of the beneficent influence of the Council on Medical Education during the last twenty years, it may seem gratuitous to take exception to its pronouncements; but the importance of this subject of graduate teaching leads me to point out that, in spite of the declaration that "the Council *is not attempting to prevent any physician from getting any* course he needs; nor is it trying to assume authority over *any individual or graduate teaching institution*, or to prevent them from offering to physicians any courses they see fit," the action of the Association in refusing to print the advertisements of courses not approved by the Council does, in effect, and to the extent of the Council's ability, prevent physicians from taking, or schools from offering, such courses.

William D. Cutter, M.D., New York.
Dean, New York Post-Graduate Medical
School and Hospital.

[Comment.—The physician will be in better position to know what courses to "freely elect" if each short course given by any graduate school is arranged with other short courses in a graded series, and if, in the printed announcements, each *short course is described so as to show its subject content;* its duration in weeks or months; the hours and days of the week when given, and the name of the teacher in charge. At present, unfortunately, this knowledge is seldom satisfactorily obtained from the announcements of the school, and the physician is forced to make a selection blindly from a maze of unstandardized short courses, which may or may not provide him with the instruction he most needs. The development of graded courses for both general practitioners and specialists is being urged for the very purpose of "enlarging and not curtailing" the opportunities for graduate medical instruction which on due investigation may be found worthy of approval by the Council. It will also meet the increasing number of requests from physicians asking where "good courses" in various subjects may be obtained.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BROMID IN A SALT-FREE DIET

To the Editor:—Is the use of bromids to flavor foods, in cases in which salt-free diets are indicated, permissible? Please omit name.

R. N. Y.

Answer.—In view of the fact that bromid is capable of partly replacing chlorid in the system, and that it is distributed just like chlorid in the fluids of the body, bromid would be as objectionable as chlorid in cases in which a salt-free diet is indicated. It would, in fact, be more objectionable, owing to the liability to produce bromism.

SANTOPERONIN

To the Editor:—Physicians in China look to The Journal for information concerning proprietary medicines. A number of foreign proprietaries are extensively exploited there and advertised in the *China Medical Journal* and other journals which are not exploited, apparently, in this country. Occasionally, *one of these drugs is exposed in German* medical journals. For example, I was asked in China repeatedly in regard to Santoperonin. I now find that Heubner, in the *Klinische Wochenschrift (2:1483, 1923)* has a note on it. We do not get the *China Medical Journal* here, so I cannot keep track of it. Would it not be possible to have a brief statement of its composition included in Queries and Minor Notes?

H. R., M.D.

Answer.—According to Heubner, the history of santoperonin, which is claimed to be an ascaricide, does not arouse confidence. The proprietary was placed on the German market before satisfying the requirements that should govern the introduction of new medicaments. Its composition has varied; the exploiter has maintained an air of secrecy concerning the identity. Heubner states, however, that unbiased examinations of the product seem to show that it is a mixture of copper oxid (38 per cent.) with organic material which essentially consists of aromatic (azo?) combinations. There seems to be little clinical evidence to warrant its use, and so far there is no justification for believing it is even as good as santonin.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

Colorado: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Indiana: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

North Dakota: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oregon: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

South Dakota: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

Washington: Olympia, January 8. Sec., Mr. William Melville, Olympia.

Wisconsin: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

INVESTIGATION OF LICENSES IN CONNECTICUT

Last week The Journal published the record of Frank Edward Gavlas, who is involved in the Connecticut licensure investigation. Three weeks ago we published the record of Donald W. Stewart. This week the report concerns George E. Sutcliffe.

George E. Sutcliffe

According to our records, George E. Sutcliffe was born in England in 1875; attended the St. Louis College of Physicians and Surgeons, 1917-1918, and was graduated by that institution in 1918. Our records indicate that he was licensed in Colorado in 1920, and in Connecticut in 1921; that he was in St. Louis in 1920; Wray, Colo., in 1921; Vernon, Colo., in 1922, and temporarily at Unionville, Conn., and St. Louis in 1922. In the publicity connected with the Connecticut scandal, one of the first men to come into the limelight was George E. Sutcliffe. According to the Hartford *Courant*, he confessed to the states attorney the facts regarding his medical education. In his confession, he named Dr. Waldo Briggs, dean of the St. Louis College of Physicians and Surgeons, as the person who secured the false credentials for him, and "revealed that he had two diplomas from the St. Louis institution, one purporting to show that he was graduated in 1918, and the other that he was graduated in 1920. He said that he also bought a diploma in a somewhat similar manner for a friend, paying $150 for it."

The following is in brief the record of Sutcliffe according to the published confession. In 1918 he was a photographer in St. Louis. A student at the St. Louis College of Physicians and Surgeons introduced him to Dr. Waldo Briggs. He told Briggs that he did not have a high school diploma, and Briggs said that he would fix it up, and also told him he would get him through in two years. The high school certificate, he said, was obtained from Prof. William P. Sachs for $25. Since Sutcliffe had no money, he arranged to pay Briggs by taking care of the books of the college. In 1919, he obtained a diploma for a friend for $50. The signatures were not good, so Dr. Briggs prepared another diploma for $150. When Sutcliffe completed the work in 1920, he said, he received two diplomas, one dated 1918 and one 1920. "Doctor Briggs gave me the 1918 diploma," said Sutcliffe, "because as he explained the state board of health of Missouri recognized persons who were graduated from the school prior to 1919." Sutcliffe took *a quiz course and passed the examining board of Colorado* in 1920. He practiced two years, and then through reciprocity was certified by the latter sta [illegible] t.

Book Notices

Handbook of Tuberculosis for Medical Students and Practitioners of Medicine. By John Ritter, Ph.G., M.D., Assistant Professor in Medicine (Department of Tuberculosis) Rush Medical College, Medical Department of the University of Chicago. Cloth. Price, $6. Pp. 572, with 64 illustrations. Chicago: Published by the Author, 1923.

There was difficulty during the World War in obtaining a sufficient number of tuberculosis experts to examine the soldiers. They were a necessary part of examining boards, most hospitals presumably had at least one, and tuberculosis hospitals had a number of them. With a filter so fine, patients still leaked through with a wrong diagnosis. Not a few were shipped from France to selected points inland at home where climate, equipment and staff were ready to do everything possible to restore them to health, but who could not respond because they did not have tuberculosis. Experts disclosed that in an early report on French soldiers who were said to have tuberculosis, there were many included who did not have the disease. Thus war demonstrated that the average physician recognizes early tuberculosis poorly. This book represents in large part the lectures and demonstrations given by its author at a medical school. It more than covers the subject, including, perhaps, too many things that have been written on tuberculosis. Can an undergraduate student find the essential features? Why ask a student to study Friedman's vaccine, Marmorek's serum and Maragliano's serum when he should be studying chests or interpreting roentgenograms? Why expatiate on the sputum albumin test when the proper staining and search for the tubercle bacillus are what the undergraduate students need? *Bacillus leprae* and *Bacillus smegmatis* should not be considered among "other varieties" of the tubercle bacillus. Perhaps there is too much said also about inherited tuberculosis. It is said in a later chapter that "primary infection usually takes place after birth and is then spoken of as extra-uterine or postnatal, in contradistinction to that infection which takes place occasionally before birth which is known as intra-uterine or prenatal." This magnifies an almost negligible subject—intra-uterine infection. The chapter on tuberculin is interesting. The technic of tuberculin dilutions and injections is clearly stated. The gist of the chapter is, "Tuberculin in itself never has, never can, and never will cure a case of tuberculosis. But it is a most valuable adjunct in the fight if aligned with fresh air, good food and out-of-door life. In specially selected cases its use is undoubtedly indicated." A student will seldom read a better discourse on the "primary focus of infection" than is found in Chapter VI. This book is not well edited; and, what is more important, it fails to present the fundamentals so that a student must recognize what is essential to recognize early tuberculosis.

The Second International Exhibition of Eugenics, held September 22 to October 22, 1921, in Connection with the Second International Congress of Eugenics in the American Museum of Natural History, New York. An Account of the Organization of the Exhibition, the Classification of the Exhibits, the List of Exhibitors, and a Catalog and Description of the Exhibits. By Harry H. Laughlin. Cloth. Price, $3. Pp. 155, with 47 illustrations. Baltimore: Williams & Wilkins Company, 1923.

This report of the extensive and attractive display of illustrative material at this congress of eugenics is evidence of two things: the important rôle which exhibits have come to play in the extension of propaganda and the education of the public, and the wide range of the activities of students of eugenics. Illustrations for this exhibit were taken from the sciences of anthropology and archeology, embryology, psychiatry, hemology, the science of statistics, genealogy, sociology and many other fields of human interest. The reproductions of the illustrative material, mostly wall charts, are of sufficient size and clearness to convey a correct idea of the full size originals. An idea my be gathered of the comprehensive nature of the display by mention of some of the illustrations: statuette of the average American male; the chromosomes of man; approaching extinction of the Mayflower descendants; miscegenation in Hawaii; heredity of longevity; palm and sole prints and their inheritance; inheritance of specific isoagglutinins of the blood; heredity of harelip and cleft palate; pedigrees of artistic and musical talents. There is no more effective way of arousing the interest of large numbers of persons and directing their thought to a subject of this sort than by such an exhibit as is described in this book.

Die neueren chemotherapeutischen Präparate aus der Chininreihe (Optochin, im besonderen Eukupin und Vuzin) und aus der Akridinreihe (Trypaflavin Rivanol). Eine kritische Besprechung des bisherigen Erfolges und der Grundlagen der Therapie. Von Ernst Laqueur, Direktor des pharmakologischen Instituts Amsterdam. Unter Mitwirkung von A. Grevenstuk, Assistent am pharmakologischen Institut Amsterdam, A. Sluyters, I. Assistent am pharmakologischen Institut Amsterdam, und L. K. Wolff, I. Assistent am hygienischen Institut Amsterdam. Paper. Price, 75 cents. Pp. 91. Berlin: Julius Springer, 1923.

The important fact that a true beginning has been made toward the production of chemotherapeutic agents that may selectively attack bacteria within the living body, just as other agents specifically attack protozoa, has naturally aroused widespread interest. As yet, however, the laboratory and clinical evidence is in an immature state and, as always is the case in such episodes in medicine, only favorable results are likely to appear in the literature. One therefore welcomes this critical review of the literature, supplemented by personal observations from investigators not directly connected with the manufacturing organizations that produce the substances now under trial. In this monograph the published reports are discussed critically, with careful consideration of the fundamental principles of chemotherapy as a background. Particular emphasis is laid on the present difficulties of transcribing experimental results and methods to clinical application. The authors prefer not to draw any definite conclusions from the existing evidence, but give as their personal view the following careful statement: "All the substances mentioned in the title can be of benefit, but benefit is to be expected only in the hands of good physicians, and while using them he must always remember that he has in his hands no perfected, specific curative, therapeutic agent." They also recognize the fact that, although we have as yet not found an ideal curative agent for the pathogenic cocci, it is remarkable that so much has actually been accomplished in such a short time. This amount of success gives us grounds for hope that the path pointed out by Ehrlich and followed by Morgenroth, his pupil, may in time lead to success. It is to be noted also that in this monograph by no means all the chemotherapeutic agents recently tried with more or less success have been taken into consideration. In brief, this monograph is a timely and valuable recapitulation of what has been accomplished thus far in one of the most important new fields of medical research.

The Practical Applications of X-Rays. By G. W. C. Kaye, O.B.E., M.A., D.Sc., Head of the Radiology Department, The National Physical Laboratory. Cloth. Price, $5. Pp. 135, with 96 illustrations. New York: E. P. Dutton & Co., 1923.

This book contains the information given by the author in his Cantor Lectures before the Royal Society of Arts. Three chapters are devoted to a description of the nature of roentgen rays, the modern tubes used in their production, and the high potential generator. Much of the material is of a highly scientific nature, requiring a knowledge of higher mathematics. The author presents numerous graphs and diagrams which greatly enhance the value of the book. Chapter IV gives a detailed discussion of the measurement of roentgen rays; the medical application is barely mentioned. The use of roentgen rays in the industries is particularly stressed. Of unusual interest is the presentation of the use of the roentgen rays in the detection of spurious paintings of Rembrandt, Rubens and other masters. An important application is in the aeroplane industry for the discovery of weak portions of material that enters the structures of the planes. Another phase is that of determining the symmetry of the core of the golf ball which, in some instances, is considerably out of center as well as shape, thus explaining the failure of proper flight of some balls—a new alibi for the dub golfer. The average roentgenologist and physician will learn that the medical field is only a small part of the many uses of the roentgen ray. Three instructive appendixes on radiation protection, nomenclature and atomic numbers have been added. The illustrations are excellent, and the subject matter is exceptionally well handled.

Miscellany

CERTAIN ELECTRICAL DIAGNOSTIC AND THERAPEUTIC METHODS FROM THE STANDPOINT OF A NEUROPSYCHIATRIST

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Los Angeles

From time to time it becomes necessary, and more or less important or imperative, to make a serious test of what most of us might prefer to allow to die by the age old processes of "trial and failure." The medical profession has seen so many such trials and failures that we feel a natural distaste at the prospect of combating even the more extensive waves of pseudomedical folly, which have their origin in the conception of mental deviates, most of whom exhibit paranoid tendencies. The history of most of them is much the same: first, the paranoid conception, preferably with a pseudoscientific terminology; second, a label, which will "sell" the conception—this is the commercial feature of it; third, let us call it psychic autointoxication—this is the epidemic phase of the disorder. Some of them take on a semireligious aspect as a part of their symptom complex. All of them have two features in common, apart from their medical, pseudomedical or antimedical tenets: (1) the selling label and (2) ultrarational sanctions. The latest of them has attempted, attained and broken all altitude records (by altitude, I mean distance away from rational and scientific bases).

In October, 1923, an opportunity presented itself in Los Angeles to examine into the diagnostic and therapeutic values of the apparatus and methods employed in the electronic reactions of Abrams. This came about through the medium of a justice court case, in which testimony was under oath and in which a wide latitude was given in the matter of the giving and taking of the testimony so as to arrive at a more or less unrestricted view, both of the legal action at issue and the larger matter of the Abrams methods of diagnosing and treating disease.

Four of the high lights of the two and a half days proceedings were: 1. A thorough and nonmedical technical examination of the various apparatus used by the Abrams disciples. This examination was made, at my request, by Prof. R. A. Millikan, head of the California Institute of Technology, Pasadena, a physicist of the first rank, a Nobel prize man and an acknowledged authority in the realm of physics and electricity. His examination consisted of three phases:

(*a*) One which was carried out alone with the doctors who were practicing it (i. e., the Abrams method).

(*b*) Listening, for the greater part of a day, to the testimony regarding it by the same and other disciples of Abrams.

(*c*) Being present when the court adjourned to the offices of two of these men and observing a typical séance or examination, in which one of the lawyers acted the part of a patient and was "diagnosed," and during which I was given the opportunity to take part in the examination and took the place of the diagnostician.

2. The opportunity of a physician (myself), who is not an Abrams disciple, (*a*) to note at first hand and actually to take part in the "diagnosis" of a patient in the presence of and according to the personal direction of a number of those who practice the Abrams method; (*b*) to see patients being treated, and (*c*) to listen to and examine a few who had been "cured" or were in the process of a "cure."

3. The qualifications—medical and otherwise—of some men who are practicing the Abrams methods and who are treating "hundreds" of patients daily, and to listen to their sworn testimony on the witness stand and to their observations off it.

4. The kinds of diseases treated by them and the attitude of the patients at present under treatment and those who have "quit" taking treatments.

THE ABRAMS APPARATUS

As to the first point, Professor Millikan not only wrote me a concise opinion covering this matter, but also enlarged on the whole subject in a lecture which he gave before the Southern California Medical Association on the night of November 3, last. A careful perusal of his letter will give to any one the opinion of a qualified expert as to the values of certain apparatus for which various claims have been made. Some of these claims are those of windy enthusiasts, but others are those of men who have more carefully testified under oath and who have in their possession certificates to practice the healing art in a sovereign state and who are daily treating by this particular method patients known to be suffering from cancer, tuberculosis, syphilis and other "killers" among diseases, as well as others in whom the diagnosis may be faulty and who may not be suffering from any disease, provided the diagnosing apparatus and method are faulty. And this is the important kernel of the whole matter—whether the diagnosing and treating apparatus and method are or are not faulty. Professor Millikan wrote:

> "I have spent the greater part of a day in listening to the description by doctors who use the so-called 'electronic method of Abrams' of that method, and in a very careful examination of the instruments and technique of the method itself. As you will remember, I made a portion of this examination of the Abrams method when I was alone with the doctors who were practicing it, and another portion when you yourself were present and took part with me in the examination.
>
> "I scarcely need to say to you, or to any other intelligent man who has examined the method, that I do not consider, that it rests upon any sort of a scientific foundation whatever. Indeed, from the standpoint of physics the claims set up by Abrams and his followers are the height of absurdity. They talk about finding the vibration frequency or vibration rate of each particular kind of disease, and they then claim that they can destroy the micro-organism which has that vibration rate by imposing upon it from without its own frequency or vibration rate. Yet when they are making a diagnosis they attempt to find the natural frequency of the disease by inserting more or less electrical resistance into a circuit which cannot oscillate at all and therefore has no vibration frequency, and if it could oscillate the period would not be changed at all by inserting more or less resistance. In other words, the setting of the dials of the resistance box upon different buttons cannot possibly make it respond to different frequencies, since the electrical system used is, in the first place, one which cannot oscillate any way, and, in the second place, if it could oscillate it would oscillate in the same period, whatever button of the resistance box the dial was turned to. So that the claim that a diagnosis can be made by turning the dial to different buttons and thus tuning in to different frequencies simply indicates complete ignorance of the fundamental laws of physics by the one who makes it.
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> "Secondly, in the treatment of the disease they claim that they impose upon the micro-organism its own vibration frequency, yet what they actually do impose for the treatment of all diseases is one and the same vibration frequency, since in the treatment, as well as in the diagnosis, the turning of the dials to different buttons cannot in the nature of the case change at all the impressed frequency. Furthermore, the actual impressed frequencies is of the order of 400 or 500 vibrations per second, as can be seen from the fact that it is heard in the ordinary telephone, and such an instrument is capable of responding only to frequencies of this low order of magnitude. But if a micro-organism has any natural frequency at all, it would have to be millions of times higher than any audible frequency of the kind they use in the treatment, so that the claim that they are finding and then imposing upon the disease its own natural frequency is simply the

height of nonsense in view of the kind of physical mechanism with which they are dealing.

"Finally, it is true that the electrons inside of atoms give off, under suitable stimulation, frequencies of definite period which are properly called electronic frequencies. These frequencies are billions of times higher than any which the Abrams people are using in the treatment, so that the use of the word 'electronic' in connection with the Abrams method is simply wholly misleading and unscientific.

DIAGNOSIS AND TREATMENT

As to the second point, most of the men whom I met and who are using the Abrams method are, like myself, licensed physicians and surgeons in the state of California. Most of them stated that their "course" under Abrams lasted only a few weeks. It is my opinion, based on observation, that the ability to acquire and practice his method does not require a high level of medical intelligence. Furthermore, the actual diagnosis of the patient (whether the patient is present or a drop of his blood is placed in the "dynamizer") depends on certain facilities which every medical student learns very early in his course; namely, observation, palpation, auscultation and percussion. There is nothing mysterious or that requires exceedingly difficult technic in the actual procedure of diagnosing disease by the Abrams method in the hands of any ordinary physician, provided he stipulates and assumes certain formulations and working hypotheses laid down by Abrams himself. And this is the kernel of this particular nut —Abrams by himself and on his own authority abitrarily lays down certain assumptions and hypotheses and preaches them dogmatically. Furthermore, they must be accepted in the same spirit by his disciples. If he is right, then they are right and their patients are in safe hands, and vice versa. In this respect his cult resembles a religious cult, because every religious cult demands certain *ultra*rational sanctions. There is no religion that does not do this, as far as I know. According to Benjamin Kidd,[1] "the essential element in all religious beliefs must apparently be the ultrarational sanction which the religions provide for social conduct."

Regarding the sanctions demanded by Abrams, they might better be termed *pseudo*rational, rather than *ultra*rational, in the light of the expert opinion concerning their apparatus of scientists, such as Professor Millikan, and their medical values in diagnosing and treating disease arrived at after examination of them by qualified medical experts. In any event, some of them are as follows, and even a glance will show the conscious and determined attempt to give an *ultra*-scientific flavor to the whole thing through the use of terminology and sanctions that are *ultra*scientific, and assumptions and arbitrary deductions that are *pseudo*scientific. What are these sanctions and assumptions? All of the following were brought out under oath:

1. All matter possesses certain wave length values. Having found the wave length, one can do certain things to matter. Example: Caruso determined the tone (wave length) given by a glass vessel, when a violin bow was drawn across its edge; he then sang into it that tone; the vessel was shattered into countless particles. This particular episode fired a fuse in Abrams' imagination that apparently blew up a whole mine of ideas, according to the testimony of one of his disciples.

2. Disease micro-organisms are matter; ergo, they have their own wave lengths (one man called them emanations, and went so far as to say he had heard them over a radio).

3. Having determined these wave lengths and discovered a method of imposing its own wave length on a given micro-organism, one can, so to speak, "shatter" it. The last assertion is one of the sanctions that no one but Abrams claims to have proved. The question might arise, why should it not do a number of other things rather than shatter or destroy? Thus far we have confronted nothing inconceivable.

4. Abrams alone claims to have discovered the wave length of certain definite micro-organisms which are etiologic factors of certain well known diseases. It has not been stated anywhere that I know of what were the various steps taken by him in his discoveries or the apparatus used. These things are very important in scientific investigations—for one reason, in order that other investigators may check up the findings. We cannot follow him here because of lack of scientific data.

5. (This seems to be a very extensive gap). The claim is made that there are certain apparatus, to which Abrams has given names, which (*a*) can and do indicate these various wave lengths in terms of "ohms" (diagnose the disease) and (*b*) others which can be and are used effectively in applying to an individual who is acting as the host to any of the disease micro-organisms that have been diagnosed such vibrations as will shatter or destroy the micro-organisms causing his disease or diseases—this last apparatus "clears the blood" of the patient and "clears" him. All this not only lacks any confirmation but has been disproved.

6. *(Another gap of assumption)*. One drop of blood contains all the elements of an individual necessary to a diagnosis of any or all the disease micro-organisms with which he is infested. (The testimony of some of Abrams' disciples goes much further than this). Ergo, one drop of blood may be used instead of the patient, because a part of the diagnostic apparatus—the "dynamizer"—is so constructed as to obtain this result, provided the drop of blood (say, on a blotter) is placed therein. Thus, either the patient or, in his or her absence, a drop of blood may be used.

7. (Other very wide gaps of assumption). (*a*) A "reagent" is injected into the path of the vibrations in the person of an individual whose blood has been "cleared" by this method.

(*b*) He must face West.

(*c*) A man can be reagent for a woman patient. (Query—Could a diagnosis be made of a malignant tumor of the ovary or uterus? I have no doubt that Abrams could bridge that gap—to his own satisfaction.)

(*d*) On the body of this reagent is reflected the diseases in the body of the patient, either he or she or a drop of blood being utilized.

(*e*) The disease "finder" (a third electrode used for localizing disease sites, e. g., sinusitis, heart disease and so on—may be held quite a distance from the surface of the "reagent's" body. This makes a real gap or jump for the vibrations.

(*f*) It is not made clear what has been discovered as to the vibrations, emanations and wave lengths of body tissues necessary to health, or of the benign or beneficent micro-organisms circulating in our bodies, e. g., the leukocytes.

(*g*) Arbitrary sites for disease organs are laid down with geographic precision on the abdomen of the reagent. These have been discovered by Abrams alone, and must be accepted by his disciples as exact sites. Use is made of these sites as follows: If the patient has, let us say, congenital syphilis, then a reaction is had over one of these sites on the reagent; acquired syphilis on another, and so on.

There are many other gaps of assumption between one's reason and Abrams' Promised Land.

Take all these observations together and they seem to demonstrate clearly that there are more gaps than solid bases; therefore any structure built on them must necessarily be air castles rather than scientific construction.

OBSERVATION OF PATIENTS

As to the fourth point, personal observations of patients, "cured" and under treatment, in the offices of Abrams disciples and seen with them:

Case 1.—A woman, aged about 45, now an assistant in the office of Dr. J. (one of Abrams' disciples), with a diagnosis of cancer (she had been operated on for the removal of carcinoma of the breast by a "regular" surgeon) claims to have been cured by the Abrams method, because her breast has entirely healed up and is now apparently without malignancy, although she says it was red and angry looking when she began to take treatments. Examination shows an excellent surgical result in the breast, but a large mass in the adjoining axilla, about the size of my fist. She says and Dr. J. (the Abrams disciple who "cured" her) says it is not malignant, and she seems quite happy and contented about it. Both look on the result as a brilliant "cure" to the credit of the Abrams method.

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[1] Kidd, Benjamin: Social Evolution, 1907.

CASE 2.—A woman, aged about 35, with a sarcoma within the abdomen, is under treatment, and a cure has been explicitly promised by Dr. J. and is fully expected by the patient. She was showed to me as a brilliant example of how a tumor "melts" away under treatment. If one takes her word for it, her abdomen is now reduced to normal dimensions and is no longer so tender that she could not bear to have any thing touch it, as it was before taking treatments. She is obviously in a most happy and exalted state of mind.

CASE 3.—A woman, aged about 30, was lying on a treatment table and being treated for tuberculosis of the larynx. The diagnosis, she said, had been made by a regular physician, and little or no hope of cure extended to her until she had come to Dr. J. He was treating her by placing electrodes about her neck, connecting them with the oscilloclast, which was tuned in to tuberculosis. With the greatest assurance Dr. J. pointed her out to me as surely to be cured. On her face was the same hedonic expression one sees on the faces of religious devotees or those who have been saved from some terrible plight. Only a great emotional actress could portray her expression, for it was the expression of one looking through the gates of heaven after having escaped the clutches of death. I have no doubt that such cures could be marshaled by companies right here in Los Angeles.

QUALIFICATIONS OF MEN PRACTICING THE ABRAMS METHOD

As to the third point, what are some of the side-lights brought out in this case? One is the personnel of the men who are practicing the Abrams method. Some that I saw are "hacks" and some are "quacks," but the terrible fact remains that all have certificates to practice the healing art in the state of California, and some of them in other states.

Not all of the Abrams disciples are ignoramuses, by any means. Some have had good medical education. Some of them, I believe, are really deluded by strong suggestion and eccentric motives into a belief flavored by hope and blinded by apparently successful cures. Many, of course, I suppose, go into it as into any speculation, from purely mercenary motives.

QUESTION THAT FACES PHYSICIANS

The question for us is, What shall we do about it? The crux of the whole matter is an old, old one: the gullibility of the public, plus the avarice and immorality of a part of the medical profession.

As long as medical practice is stood up in the market place to be knocked down to the highest bidder, and the healing art placed in the soiled hands of ignorant and immoral practitioners by popular vote, so long will quacks and charlatans abound and wax fat. This state is an inglorious example of the misuse of such terms as "fair play in medicine" and "personal freedom." The former leads to quackery under the mantle of science, and the latter ties the hands of intelligence and gives free rein to the moron. As to Abrams and his tribe, their state certificates to practice the healing art should be taken away from them.

I base this deliberate statement on the following:

1. The apparatus used in the Abrams method have been found to be worthless from the standpoint of electronics and physics, and useless from the standpoint of medical science.

2. The very names and terminology utilized in this method have been proved misleading.

3. The method has not passed the acid test of scientific bodies competent to make such tests. As yet neither the Rockefeller nor any other accredited group has sanctioned it. On the other hand, Abrams has consistently refused to submit himself and his method to the scrutiny of qualified investigators.

4. The propaganda used by him and his disciples is the same well known propaganda of the fraudulent "cancer cures," "consumption cures," "kidney cures" and "diseases of men cures." These have been declared frauds, and their exponents deprived of their certificates to practice medicine.

5. The man or woman who obtains a certificate to practice medicine must be able to show sufficient educational qualifications. In order to practice medicine, he or she must be able to give to his or her patient certainly the average qualifications for diagnosing and treating disease. These are obtained only by previous study in medical schools. There is not a single medical school which sanctions the Abrams methods. Therefore the physician who holds himself out to be an M.D. and throws into the discard the methods he has been taught and which are accepted as the tenets of medical science has no right to practice medicine. If he continues so to do and uses methods proved to be false and contrary to all science, and in addition holds out promises that are false and takes money for so doing, then he should not only forfeit his certificate to practice but should be serving an indeterminate sentence for fraudulent practices.

Federal and state laws hold us as physicians to strict accountability in the matter of the possession and dispensing of narcotics. Is it not more heinous and dangerous to possess and dispense fraudulent promises? Which is the greater fraud—to sell a "salted" gold mine and fake oil units, or to sell faked diseases and faked cures to the same family? And what is more dangerous and abominable than to promise and pretend to cure real diseases and thereby lull into a false sense of security those who are surely going to die, if their disease is allowed time in which to intrench itself?

Westlake Professional Building.

FORECASTING THE POPULATION OF THE NEW YORK REGION

Forecasting the populations of the future is a problem that faces large cities. There are a number of methods based on the population figures of the past. The trend of past population changes is determined, and this trend is extended into the future. The difference in forecasting methods lies chiefly in extending the curve that represents the future aggregates. In a mathematical calculation of future populations, the factors that must be considered are: (1) a definite area on which the population grows; (2) a definite upper limit to the number of persons who can live on that area; (3) a lower limit to the population, which is zero; (4) the epochal character of growth (epochs marking advances in human culture and economy permit given areas to support more people), and (5) the rate of growth in each epoch, which varies, being slow at first, then increasing in rate to a maximum, then decreasing until almost a stationary aggregate is maintained. With these, Pearl and Reed developed a mathematical equation which indicates that the population of the New York City region in the year 2000 will be 28,800,000, or about three times the present population (Pearl, Raymond; and Reed, L. J.: Predicted Growth of Population of New York and Its Environs, 1923). According to the prediction equations, the population at that time will have a tendency to stabilize, the one outstanding exception being that the number of foreign born will ultimately tend to stabilize at about 1,525,000, which is far below the number predicted for the year 2000. The negro population will have tripled and will then constitute 5 per cent. of the population, whereas it is now but 2.6 per cent. The mathematical theory applied to this problem has been applied to the populations of all the large countries and to several large cities. According to the authors, the agreement in all of these cases between the observed values and those of the equation is of the same order as that usually found in applying a mathematical law to measurements in the field of science. The probable errors in a calculation of this kind would seem to be greater in the case of the elements of the population than in the case of the population as a whole.

Medicolegal

Appeals from Orders of State Medical Board

(Rutledge v. State Medical Board (Ohio), 140 N. E. R. 132)

The Supreme Court of Ohio, in reversing the judgments of the court of common pleas and the court of appeals and in remanding the cause for a proper hearing, says that the petitioner, after having been refused a certificate to practice medicine under the limited practice act, had filed a petition for review in the court of common pleas, which dismissed his petition and was sustained therein by the court of appeals. This controversy involved the construction of Section 1276 of the General Code of Ohio, which provides for an appeal in certain cases from the action of the state medical board to the court of common pleas. An examination of that section, and of other related sections, discloses that, although the right to an appeal is granted, the procedure and the formalities attending the perfection of such an appeal are not provided. Since the statute makes no provision for the formalities, and since it is quite clear that it was intended to grant the right of appeal, the court should not resort to technicalities, or place difficulties or stumbling blocks in the way of a person desiring to appeal any such case, but it should be held, on the contrary, that any notice to the medical board of his desire to appeal, or call on that board for a certification of the papers and records to the court of common pleas, indicating his purpose to appeal from the action of the medical board and his desire to have his case heard on appeal in the court of common pleas, should be sufficient to invoke the action of that court. It was urged, indeed, that no pleadings are required, or are even permissible, and in this view of the matter this court concurs. It must be agreed that practically all of the petition filed in this instance in the court of common pleas of the county of the petitioner's residence, except that part stating his grievance, desire to appeal, and demanding a certification of the papers and records to such court, was immaterial, and should have been treated as surplusage. The applicant being entitled to have a hearing, the medical board should have certified the papers to the court of common pleas, and the court should have proceeded to hear the case on appeal.

It was urged, however, that, since counsel for the petitioner saw fit to set out at length his petition, the medical board might demur to it and thereby raise the question whether or not it stated a cause of action, and also the question of the court's jurisdiction of the subject matter; and the demurrer filed did allege these two grounds. The grounds for sustaining the demurrer were not definitely stated. If it was on the theory that a petition was not the proper procedure, the judgment was, for the reason already stated, erroneous. Or, if the court had in mind to determine whether the facts stated in the petition were such as to entitle the petitioner to a certificate, a proper conclusion was not reached because the demurrer necessarily admitted the truth of the allegations in the petition that the petitioner had passed the examination and was not guilty of any of the things that would constitute a bar to his admission to practice.

It is not the province of this court to lay down rules or formalities governing an appeal in such cases, but it is proper for this court to state that on his appeal the petitioner was entitled to have a hearing, and the matter to be heard was the question of his right to a certificate. The length of the petition filed by him was a misconception for which he was not altogether to blame, since no procedure had been laid down by the statute. In other words, this court has reached the conclusion that the petitioner was entitled to an appeal, and to have the matter heard by the court of common pleas on appeal, and that the hearing should involve the merits of his claim, and not necessarily the truthfulness of the allegations of his petition.

Pneumonia Following Lowered Resistance from Heat

(Hoag et al. v. Kansas Independent Laundry (Kan.), 215 Pac. R. 295)

The Supreme Court of Kansas, in affirming a judgment in favor of the defendant in this action brought to recover for the death of an engineer employed by the defendant, says that the engineer, who, as part of his employment, cleaned his boilers, was overcome by excessive heat of the boilers while cleaning them. He was not prostrated, but was disabled. The disability was that his power of physical resistance was reduced so that pneumonia bacteria immediately became active, and he died of pneumonia seven days later. The court holds that his death did not result from personal injury by accident, within the meaning of the workmen's compensation act.

It is now generally recognized that what is known as heat stroke is an accident, within the meaning of compensation laws; and frostbite has been placed in the same category. When personal injury by accident has occurred, compensation may be recovered for disability and disease consequent on the injury. This engineer knew about the heat of boilers, which on the occasion in question was excessive, either in relation to the usual temperature when the boilers were cleaned, or in relation to ability to withstand the heat incident to cleaning them. In either case the engineer was inattentive to or misjudged the effect of the temperature on his power of endurance. For this reason, what happened to him was unexpected and, if what happened had been identifiable injury, the event could have been described as personal injury by accident. He did not unexpectedly come into initial contact with pneumonia bacteria by washing the boilers, nor were the pneumonia bacteria intruded into his system thereby. There was no definite physical lesion producing a specific kind of disability, such as occurs in heat stroke. Disease-producing bacterial activity was stimulated by a favorable condition; the favorable condition was lowered physical resistance to cause of disease; the lowered physical resistence was produced by work in excessive heat; and in the last analysis the question was whether unexpected reduction of resistance to a bacterial disease, resulting from performing work under some misjudged or ignored circumstances or condition, constitutes personal injury by accident. The court is of the opinion that the question should be answered in the negative. Lowered vitality may come from heavy work, from fatigue, from long hours of work, and from a great variety of other causes which expose a workman to pneumonia and other diseases. The result is that there is a twilight zone between clear personal injury by accident, which is covered by the compensation act, and sickness, which is not covered. In this case it was proposed to dispense with hurt, and make debility alone stand for injury, in the sense of the statute.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Current Medical Literature

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

166: 469-624 (Oct.) 1923

*Erythremia (Polycythemia Rubra Vera). G. R. Minot and T. E. Buckman, Boston.—p. 469.
*Studies of Capillaries and Blood Volume in Polycythemia Vera. G. E. Brown and H. Z. Giffin, Rochester, Minn.—p. 489.
*Curative Treatment by Splenectomy of Chronic Thrombocytopenic Purpura Hemorrhagica. N. E. Brill and N. Rosenthal, New York.—p. 503.
*Suprarenal Hemorrhage in Infancy. M. A. Rabinowitz, Brooklyn.—p. 513.
*Phenoltetrachlorphthalein Test as Means of Determining Liver Function. J. Friedenwald and W. H. Gantt, Baltimore.—p. 519.
Physiology of Extrahepatic Biliary System. Application to Surgical Therapy. C. G. Heyd, New York.—p. 526.
Quantitative Determination of Enzyme Activity in Duodenal Fluids. C. W. Lueders, O. Bergeim and M. E. Rehfuss, Philadelphia.—p. 535.
*Antipneumococcus Serum in Lobar Pneumonia. C. N. B. Camac, New York.—p. 539.
*Juvenile Paresis: Twenty-Three Cases. J. V. Klauder, Philadelphia, and H. C. Solomon, Boston.—p. 545.
*Case of Meningococcic Meningitis Following Head Injury. DeW. G. Richey and T. R. Helmbold, Pittsburgh.—p. 559.
Pulmonary Segment Reflexes. J. G. M. Bullowa, New York.—p. 565.
Cardiodynamics of Arterial Hypertension. A. R. Elliott, Chicago.—p. 576.
Congenital Malformations of Aortic and Pulmonary Valves. J. P. Simonds, Chicago.—p. 584.

Erythremia.—Certain aspects of erythremia are presented by Minot and Buckman from a study of fifteen cases. Three cases are recorded in which, after a polycythemia for many years the patients developed anemia coincidently with a further increase in the size of the spleen and a leukemic blood picture. One of these cases was examined postmortem. The spleen, liver and bone marrow showed a hyperplastic blood formation similar to that seen in myelogenous leukemia.

Polycythemia Vera.—Seven cases of polycythemia vera were studied by Brown and Giffin. In six of these in which a definite diagnosis of polycythemia vera could be made, the nail fold capillaries revealed marked engorgement of either one or both capillary limbs. In one case in which the diagnosis was less definite, only slight engorgement was observed. The venous side of the capillary loop was usually more markedly distended than the arterial. In twenty-seven supposedly normal controls, the average total length of the capillary loops was 0.368 mm.; in cases of polycythemia vera it was 0.602 mm. The measurements of velocity of flow indicated a very definite decrease in the rate of flow in polycythemia vera. Estimation of the blood volumes in these patients revealed marked increases of cell volume and total blood volume. The relationship of these observations to certain features of the disease is considered.

Splenectomy in Purpura Hemorrhagica.—On the basis of clinical results, Brill and Rosenthal feel justified in saying that splenectomy in this disease is a life saving measure and should be employed in all grave cases of chronic thrombocytopenic purpura. It saved the lives of their two patients. There is considerable evidence to believe that splenectomy is also curative.

Suprarenal Hemorrhage in Infancy.—Rabinowitz reports the clinical features and necropsy findings in two cases. He states that an acute illness in a previously healthy child, which is rapidly followed by purpura and collapse should, in the absence of signs pointing to meningococcic infection, be sufficient for diagnosis.

Phenoltetrachlorphthalein Test of Liver Function.—Friedenwald and Gantt are of opinion that this test is a valuable means of determining liver function. It has proved useful as a means of checking the technic of nonsurgical biliary drainage. It is also of value in the diagnosis of cirrhosis and carcinoma of the liver and obstruction of the common duct from stone or tumor.

Antipneumococcus Serum in Lobar Pneumonia.—The mortality of all types of lobar pneumonia (municipal and military), nonepidemic, treated with Type 1 serum was 13.9 per cent.; among the cases treated without serum it was 29.8 per cent. Serum administered in the first twenty-four to thirty-six hours offered the best prognosis.

Juvenile General Paralysis.—Klauder and Solomon emphasize that the clinical picture of general paralysis in juveniles is unlike that of the adult. Many juvenile general paralytics pass as cases of epilepsy or idiocy with epilepsy. In the light of present knowledge the status of an epileptic or feebleminded congenital syphilitic cannot always be defined accurately in the absence of a spinal fluid examination.

Traumatic Meningococcic Meningitis.—An instance of meningococcic meningitis with recovery in a boy of 12 within thirty hours after an injury to the head, producing commotio cerebri and probably minute lacerations of the brain and rupture of intracranial capillaries, is reported by Richey and Helmbold. While it is possible that the occurrence of the meningitis and the trauma were coincidental, nevertheless, the evidence indicates that the injury predisposed to the meningeal localization of the bacteria; these could have gained entrance readily to the blood stream through the injured nasopharyngeal lining, from whence they were carried, hematogenously, within a skull in which the pressure relations had been disturbed, a locus minoris resistentiae had been established, and rupture of capillaries in all probability had occurred.

Archives of Dermatology and Syphilology, Chicago

8: 461-596 (Oct.) 1923

*Application of Warthin-Starry Silver-Agar Method to Demonstration of Spirochaeta Pallida in Spinal Fluid by Means of Coagula Obtained by Alzheimer Method. A. S. Warthin, R. C. Wanstrom and E. Buffington, Ann Arbor, Mich.—p. 461.
*Bismuth in Treatment of Syphilis. L. K. McCafferty, New York.—p. 469.
Hereditary Pigmentation of Leg Associated with Atrophy. M. F. Engman, St. Louis.—p. 483.
*Lupus Erythematosus Acutus Disseminatus. W. E. Robertson and J. V. Klauder, Philadelphia.—p. 487.
Acquired Lymphangioma of Vulva Secondary to Tuberculous Obliteration of Inguinal Glands. J. H. Stokes, Rochester, Minn.—p. 498.
Vitiligo and Alopecia Areata Associated with Severe Hyperthyroidism. S. Ayres, Jr., Los Angeles.—p. 502.
Inflammation. L. Török, Budapest.—p. 505.
Use of Chromogenic Indicators in Dermatology. H. Sharlit and W. J. Highman, New York.—p. 515.
School Physician as Dermatologist. H. G. Rowell, New Bedford, Mass.—p. 520.
*Blood Studies in Psoriasis. A. Strickler and E. Asnis, Philadelphia.—p. 523.
Red Light Treatment. H. E. Ahlswede, Hamburg, Germany.—p. 527.
Dermatitis from Oleic Acid. W. H. Hailey, Atlanta, Ga.—p. 530.
A Heavenly Meeting. W. J. Highman, New York.—p. 532.

Demonstration of Spirochetes in Spinal Fluid.—Evidence is presented by Warthin et al. which supports the statement that staining of sections of spinal fluid coagula by the Warthin-Starry method offers a valuable means for the demonstration of spirochetes in spinal fluid, serums or other fluids in which the organisms may be present, either in small or large numbers, but especially in the former case. In albuminous fluids in which the spirochetes occur in small numbers, the concentration of the organisms into the albuminous clot by means of the centrifuge is a valuable aid in determining their presence in the fluid.

Bismuth in Treatment of Syphilis.—The preparation used by McCafferty in treating twenty-five cases was potassium and sodium tartrobismuthate. From twelve to sixteen injections, given every four days, comprised a course. Each ampule contained approximately 2 c.c., or 20 cg., of active bismuth, in an oil suspension. The immediate action of bismuth in primary and secondary syphilis is as effective as that of arsphenamin, although it is slower in its action, both clinically and serologically. There seems to be a real indication for bismuth in Wassermann-fast patients, as well as in patients who have an idiosyncrasy to arsenic. Central nervous system syphilis gives evidence of responding to bismuth as well as it does to intravenous injections of arsphenamin, but the time has been too short to draw any definite conclusions. Stomatitis and local pain from injections are negligible factors. Arsenic, bismuth and mercury may be used in treating syphilis, either in combination or separately. urinalysis should be made every month

Acute Disseminated Erythematous Lupus.—The case reported by Robertson and Klauder is that of a woman who presented an acute lupus erythematosus of the type described by Kaposi as "erysipelas perstans facei." The patient had in addition the usual accompanying symptoms—arthritic pains, albuminuria, irregular and remittent temperature prostration and delirium—and the condition finally resulted in death. The case is reported because of the extraordinary association of a disseminated telangiectasis with cutaneous hemorrhages. The occurrence of disseminated telangiectasis in a patient with acute lupus erythematosus is said not to have been recorded previously in the literature.

Blood Studies in Psoriasis.—A marked lymphocytosis occurred in 54 per cent. of the blood smears of the patients with psoriasis studied by Strickler and Asnis. The lymphocytosis was always at the expense of the polymorphonuclear leukocytes, the other white blood cells being found in practically normal proportions. The study of the blood smears for some form of spirochete, using a special staining method, yielded only negative results.

Archives of Ophthalmology, New Rochelle, N. Y.

52: *417-524* (Sept.) 1923

Recurrent Paralyses of Eye Muscles with Especial Reference to Ophthalmoplegic Migraine. A. Duane, New York.—p. 417.
New Method of Preventing Postoperative Intraocular Infections. Report of 1,250 Cases. G. H. Bell, New York.—p. 436.
Congenital Oculofacial Paralysis. D. B. Kirby, New York.—p. 452.
Experiences Working with Dr. Barraquer in Barcelona. W. McLean, New York.—p. 460.
Dermoid of Cornea. T. H. Butler, Birmingham, England.—p. 469.
Report of a Case of Purpura Hemorrhagica. M. Cohen, New York.—p. 471.
Subperiosteal Abscess in Floor of Orbit. A. Knapp, New York.—p. 475.
Report of British Ministry of Health on Causes and Prevention of Blindness. P. G. Doyne, London.—p. 478.

Boston Medical and Surgical Journal

189: 629-670 (Nov. 1) 1923

*Germanium Dioxid as Remedy for Amenia. G. R. Minot and J. J. Sampson, Boston.—p. 629.
Effect of Traction on Spinal Column and on Intraspinal Pressure. M. P. Rucker, Richmond, Va.—p. 639.
Fee List from Papers of Archelaus Green Smith, M.D. S. Cobb, Boston.—p. 641.

Germanium Dioxid as Remedy for Anemia.—The observations made by Minot and Sampson show that germanium dioxid given intravenously or intraperitoneally is relatively nontoxic even in large doses. Their conclusions regarding the erythropoietic action and therapeutic value of this substance are divergent from those of other authors. No evidence was obtained by them suggesting that germanium dioxid has the power to increase blood formation or that it exerts any significant effect on the health of anemic individuals. Consequently, the drug seems to be of no value in the treatment of anemia.

Colorado Medicine, Denver

20: 229-254 (Sept.) 1923

Advantages and Purposes of Organized Medicine. M. Black, Denver.—p. 237.
Relation of Municipal Administration to Public Health. J. W. Amesse, Denver.—p. 239.
Changes in Kidney Function (Clinical Nephritis) and Changes in Kidney Tissue. A. G. Ellis, Colorado Springs.—p. 243.
Cancer of Mouth. W. W. Grant, Denver.—p. 248.
The Physician. H. G. Maul, Denver.—p. 251.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 95-124 (Oct.) 1923

Extreme Effects of Focal Infection. J. V. Freeman, Jacksonville.—p. 95.
Nonsurgical Drainage of Bile Channels. Use of Duodenal Tube as diagnostic and Therapeutic Agent in Chronic Biliary Disease. E. B. Milam, Jacksonville.—p. 97.
Diabetes Mellitus: Cardinal Principles of Treatment. J. S. McLester, Birmingham, Ala.—p. 102.
Some Hygienic Activities of Naval Air Station, Pensacola. H. W. Cole.—p. 104.
Professional Ethical Business Relation of Physician and Surgeon. R. R. Kime, Orlando.—p. 109.
Antitoxin Treatment of Case of Tetanus, with Recovery. J. S. Turberville, Century.—p. 113.
Aviation Medicine. J. R. Poppen.—p. 113.
Congenital Clubfeet. J. K. Simpson, Jacksonville.—p. 117.

Iowa State Medical Society Journal, Des Moines

13: *403-440* (Oct. 15) 1923

Some Practical Considerations of Physiology of Upper Respiratory Tract. H. I. Lillie, Rochester, Minn.—p. 403.
Pyloric Stenosis of Infancy. H. L. Brereton, Emmetsburg.—p. 415.
Chronic Indigestion in Childhood. J. L. Morse, Boston.—p. 422.
Ectopic Gestation. Report of Cases. T. W. Nuzum, Janesville, Wis.—p. 427.
Rachicentesis or Spinal Drainage in Convulsions. J. A. St. Onge, Sioux City.—p. 430.

Journal of Bone and Joint Surgery, Boston

5: *633-847* (Oct.) 1923

*Internal Derangements of Knee. J. K. Surls and R. B. Osgood, Boston.—p. 635.
*Periosteal Blood Supply and Healing of Fractures. A. Kolodny, Iowa City, Iowa.—p. 698.
Relaxation of Shoulder Following Body Injury. R. Hannond, Providence, R. I.—p. 712.
*Treatment of Bone and Joint Tuberculosis with Tuberculin and Heliotherapy. W. A. Clark, Pasadena, Calif.—p. 721.
Late Correction of Fracture Deformities of Femur. H. W. Orr, Lincoln, Neb.—p. 740.
Confessions of Internist Regarding Body Mechanics. R. I. Lee, Boston.—p. 747.
Chart for Standardization of Body Mechanics. R. I. Lee and L. T. Brown, Boston.—p. 753.
New Method of Recording Posture. N. W. Fradd, Boston.—p. 757.
*Actinomycosis and Blastomycosis of Spine. C. A. Parker, Chicago.—p. 759.
Treatment of Obstetric Brachial Paralysis. Report of Fifty Cases. S. W. Boorstein, New York.—p. 778.
*Gas Infection with Compound Fracture and Bridging of New Bone without Bone Transplant. L. A. O. Goddu, Boston.—p. 801.
Treatment of Intracapsular Fracture of Hip by Whitman Method. L. A. O. Goddu, Boston.—p. 808.
*Operation for Correction of "Drop-Foot." W. C. Campbell, Memphis, Tenn.—p. 815.

Internal Derangements of Knee.—The report made by Surls and Osgood is based on 181 operations. The external semilunar cases all had very satisfactory results, except one, in which the result could not be ascertained, as the patient developed a fresh trouble after operation. Loose body joint cases gave the next most satisfactory result, closely followed by the internal semilunar cases. The results in the fringe and fat cases were not nearly so satisfactory, and in the hypertrophic bone cases there were no very satisfactory results. A suggested outline for making records of internal derangements of the knee is presented.

Periosteal Blood Supply and Healing of Fractures.—The experiments made by Kolodny prove that destruction of the periosteal blood supply leads to nonunion of fracture. Endosteal callus does not prevent pseudo-arthrosis when periosteal callus formation is retarded. The claim that grafted periosteum does not always produce bone is said to be unfounded. Periosteum of an adult animal plus reactive stimulation is equal to periosteum of a young animal. Reactive stimulations which are able to change the latent capacity for bone formation of the adult periosteum into an active stage are fractures, trauma and slight infections of the bone.

Tuberculin and Heliotherapy in Treatment of Bone and Joint Tuberculosis.—Conservative and hygienic treatment of tuberculosis of the bones and joints is urged by Clark. Rest, heliotherapy, tuberculin and general hygiene, he says, are the methods of most importance in children. Clark uses the bouillon filtrate (B. F.) of tuberculin, the beginning dose being $\frac{1}{20000}$ mg., injected subcutaneously. The maximum dose of 0.01 mg. is reached after about three months' treatment. In three cases under tuberculin treatment the temperature was more regular and lower than it was before treatment was begun. Leukocytosis was stimulated in two of the three cases. The course of the disease is shortened and the patient's general condition is better under heliotherapy than without it.

Actinomycosis and Blastomycosis of Spine.—One case of each type is reported by Parker. He says that actinomycosis and blastomycosis of the spine are extremely malignant conditions for which virtually nothing can be done in the way of treatment. The mortality is 100 per cent.

Bridging of Gap in Radius by New Bone Without Bone Transplant.—In Goddu's case a 3 inch gap in the lower end of the radius became bridged over without aid in about three months in spite of an original gas bacillus infection, which was the reason for not transplanting bone.

Operation for Correction of Drop Foot.—In a large per cent. of paralytic feet it is necessary to remove bone for the purpose of the correction of deformity and stabilization of the midtarsal region. These particles of spongy bone are employed by Campbell as transplants in order to block plantar flexion.

Journal of Laboratory and Clinical Medicine, St. Louis

9: 1-70 (Oct.) 1923

- *Toxemia of Severe Superficial Burns. B. Robertson and G. Boyd, Toronto.—p. 1.
- *Pharmacology of Benzyl Alcohol and Its Esters. C. M. Gruber, St. Louis.—p. 15.
- *Tartar Emetic. W. G. Christiansen and A. J. Norton, Boston.—p. 34.
- Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago.—p. 37.
- *Importance of Suprarenals in Action of Certain Alkaloids. C. W. Edmunds and P. C. Lloyd, Ann Arbor, Mich.—p. 45.
- Chemistry of Blood and Cerebrospinal Fluid. N. G. Barrio, Rochester, Minn.—p. 54.
- *Warning Against Use of Arsphenamin in Treatment of Syphilis in Hemophilia. J. Rosenbloom, Pittsburgh.—p. 57.

Cause of Death in Superficial Burns.—The cause of death in superficial burns was made the subject of an experimental study by Robertson and Boyd. Skin, subcutaneous tissue and muscle burns were produced in anesthetized rabbits. Typical symptoms, with shock, followed the production of the burn in all cases. These facts emerge: Death from burning occurring within the first twenty-four hours is practically always due to primary shock; later than this, it is due to toxic shock. There is a toxin produced in burned tissue, in larger quantities in skin burn, which circulates in the blood, either in, or absorbed by, the red blood corpuscles, and which causes the symptoms seen in bad superficial burns, and in some cases death. Extracts of burned skin were found to be toxic. Extracts of skin burned post mortem were innocuous. The contents of burn blisters are not toxic. That there is increased protein catabolism in burns was evidenced by the increase in the nonprotein nitrogen and urea nitrogen of the blood. Whole citrated blood from burn cases is toxic. The blood serum is not toxic. Solutions of the corpuscles properly treated are more toxic than whole blood. The toxic substance consists of two portions, one of which is thermostabile, diffusible and neurotoxic; the other is thermolabile, colloidal and necrotoxic. Chemically, the toxin consists of primary and secondary proteoses. No evidence of the production of antibodies against the burn toxin could be found.

Pharmacology of Benzyl Alcohol and Esters.—No change in blood pressure was observed by Gruber in dogs when benzyl alcohol, benzyl acetate or benzyl benzoate was administered orally. The drugs of the nitrite series lower both systolic and diastolic blood pressures in normal, unanesthetized dogs when given by mouth, the same as when given clinically in human beings. Moderate doses of benzyl benzoate, 20 per cent. by volume in alcohol, produced a fall in blood pressure, probably due to the alcohol, not the benzyl esters. In susceptible, unanesthetized animals moderate doses of ethyl alcohol produced a fall in blood pressure. When given orally, benzyl alcohol, benzyl acetate and benzyl benzoate do not alter the pulse rate. The drugs of the nitrite series and ethyl alcohol, on the other hand, cause acceleration of the pulse due to the fall in blood pressure and resultant anemia of the cardiac centers. Benzyl alcohol and benzyl acetate possess emetic actions. This is also observed in some animals with benzyl benzoate. The action is due to local irritation of the alimentary canal and not to excitation of the vomiting center. Subcutaneous and intramuscular injections of the same dose as given by mouth in the same animal do not produce emesis. Moderate doses of benzyl alcohol and benzyl acetate and benzyl benzoate possess cathartic actions. This action is due to the local irritation by the drug. Benzyl benzoate possesses a very slight narcotic action when given in huge doses, 1 ml. per kilogram of body weight in the dog.

Tartar Emetic Solutions Do Not Decompose.—The experiments made by Christiansen and Norton prove conclusively that solutions of pure tartar emetic in distilled water do not undergo decomposition under the conditions to which such a solution is likely to be exposed, and that the solution remains perfectly clear after sterilization. Strong acids and alkalies, and physiologic solutions, such as those containing calcium, must be kept out of the tartar emetic solutions as these cause decomposition.

Effect of Physostigmin on Erythrocytes.—Edmunds and Lloyd state that physostigmin given in small doses (0.5 mg. per kilogram) to dogs causes no characteristic change in the number of red blood cells, while with slightly larger amounts (0.7 mg. per kilogram) it markedly increases their number in the circulating blood. This increase seems to be due not to differences in distribution of the cells but to an action on the bone marrow.

Arsphenamin Contraindicated in Presence of Hemophilia.—A man consulted Rosenbloom for continual bleeding from a tooth socket following tooth extraction. His hemoglobin was 40 per cent.; red corpuscles 2,300,000, and Wassermann reaction 4 plus. Transfusion was done. The bleeding did not stop. Following the use of horse serum and transfusion, an injection of 0.6 gm. of arsphenamin was given. Within one hour following the injection all of his gums commenced bleeding at an alarming rate, the hemoglobin falling to 30 per cent. In spite of two more transfusions, the use of coagulose, horse serum, emetin, etc., the man continued to bleed, and two weeks following the injection of arsphenamin he died from anemia due to the hemorrhages.

Journal of Metabolic Research, Morristown, N. J.

3: 511-639 (April) 1923

- Influence of Disturbance in Acid-Base Equilibrium of Blood on Renal Function and Pathology. W. deB. MacNider, Chapel Hills, N. C. I. Effect of Acid and Alkaline Solutions on Normal Dogs.—p. 511.
  - Id. II. Effect of Acid and Alkaline Solutions on Nephropathic Dogs. —p. 539.
  - Id. III. Ability of Alkaline Solution to Protect Kidney Against Acid Solution.—p. 569.
- Vitamin Potency of Cod Liver Oils. IV. Quantitative Estimation of Vitamin A. A. D. Holmes, Boston.—p. 583.
- *Experimental Studies in Diabetes. II. Internal Pancreatic Function. 11. Relation of Suprarenals to Diabetes. F. M. Allen, New York.—p. 589.
- *Id. 12. Diabetes and Phlorizin Glycosuria. F. M. Allen, New York. —p. 623.

Relation of Suprarenals to Diabetes.—Evidence obtained by Allen together with much already existing in the literature, is interpreted as proving that epinephrin is not a diabetogenic agent or a physiologic antagonist of insulin. In an animal with active diabetes, epinephrin injections caused a greatly increased excretion of both sugar and nitrogen, as compared with normal or diabetic controls. The most important feature was the extra destruction of protein continuing over a number of days, indicating that the increased glycosuria was not a mere sweeping out of preformed carbohydrate. No positive interpretation is established, but this result harmonizes with other evidence of an anabolic rôle of insulin, which is essential for upbuilding and maintaining the entire body mass and of an abnormal susceptibility to breakdown of the [illegible] with active diabetes.

Spontaneous Expulsion of Papilloma of Bladder with Cure. E. R. Sisk, Madison, Wis.—p. 325.
Uterovesical Fistula. F. J. Parmenter and C. Leutenegger, Buffalo.—p. 329.

Length of Survival of Kidney Transplants.—Williamson asserts that autogenous kidney transplants will maintain life for weeks in a practically normal manner after the removal of the remaining normal kidney. The failure of the autogenous transplant seems to be due to atresia of the ureter, hydronephrosis and infection. The homogenous kidney transplant functions as does the autogenous one for a limited time, but this function continues for only a few days. The average length of function for the homogenous transplant has been four days, and the maximum, ten days. During the time that all three kidneys are functioning, two-hour test periods of the function show that the amount of urea, urea nitrogen and creatinin eliminated by the transplanted kidney is only slightly less than the combined output of both normal kidneys. The total amount eliminated by all three kidneys is more than was eliminated by the normal kidneys before operation. During the time that all three kidneys are functioning there is a sharp reduction of the nitrogenous elements of blood urea, urea nitrogen and creatinin. Williamson does not believe that the failure of the homogenous experiments can be attributed to mechanical factors.

Leukoplakia of Bladder.—In Valentine's case the lesions seemed to be limited to the bladder. From the studies and observation made, the opinion is offered, that leukoplakia usually exists in persons (1) who have been subjects of chronic infections of the urinary tract (in this instance, bilateral pyelonephritis), and (2) those who have an obstruction to the normal outlet of urine (contracture of vesical neck).

Rare Case of Schistasis.—The development of the child, in the case reported by Hess, was perfect until the umbilicus was reached. The entire lower segments of the lower abdomen had failed to close. There was some modified skin just below the umbilicus and two soft masses presented at the sides of the bladder, which was perfectly formed and capable of holding about 20 c.c. of urine. The sphincter control was excellent and there was a short urethra. Directly below was a tube about 6 cm. long which suggested a penis, connecting at the bladder with a larger mass which proved to be the sigmoid. This bowel mass presented through the definite labia which seemed to spring from the tissues at the tip of the coccyx. The roentgen ray showed complete absence of the pubic bones. The uterus was normally situated but its cervix presented blind between the bladder and the rectum and was totally confined inside the abdominal cavity. There was no obstruction to the passage of ingested food and the urinary organs functioned normally. The infant died on the eleventh day.

Michigan State Medical Society Journal, Grand Rapids

22: 403-460 (Oct.) 1923

Dangers and Duties of Hour in Medical Practice. J. L. Chester, Detroit.—p. 409.
Proper Scope of Pediatrics. T. B. Cooley, Detroit.—p. 413.
Training of Ophthalmologists and Otolaryngologists in Michigan. H. W. Pierce, Detroit.—p. 415.
Practical Aspects of Contracted Pelvis. E. D. Plass, Detroit.—p. 419.
Adenectomy Hemostatic Forceps. E. Amberg, Detroit.—p. 422.
The Medical Profession. W. N. Ferris, Big Rapids.—p. 422.
The Doctor. His Relation to Life and People. A. W. Wishart, Grand Rapids.—p. 427.

22: 461-494 (Nov.) 1923

*So-Called Arthritis Deformans. L. M. Warfield, Ann Arbor.—p. 461.
Diagnostic Value of Roentgen-Ray in Obstetrics. A. M. Campbell, Grand Rapids.—p. 465.
City Program for Control of Tuberculosis. A. M. Wehenkel, Detroit.—p. 469.
Auricular Fibrillation. F. N. Wilson, Ann Arbor.—p. 473.
Changes in Lungs and Bronchi Due to Upper Respiratory Disorders. J. S. Pritchard, Battle Creek.—p. 480.
Insolation Encephalitis. E. Amberg, Detroit.—p. 482.

Arthritis Deformans.—Warfield feels that a great deal can be done for these patients. First and foremost, a diagnosis should be made as early as possible and treatment started not half-heartedly, but with the idea that if these patients are not treated intensively, nothing is achieved. In the cases frankly the result of infection, the procedure would be as follows: removal of foci of infection at once; immobilization of joints that are inflamed; actinotherapy and dry heat. As the joints improve, Bier's hyperemia is at times valuable. Warfield has found that cincophen relieves the pain much better than any other drug, except, of course, morphin or codein. It is advisable also to push fluids and to give sodium bicarbonate. It seems to assist in relieving the condition. Cod liver oil is given as a routine in the infectious and atrophic cases. The patient should be fed with nutritious food of any kind. Buttermilk made with *B. bulgaricus* has seemed to help materially. The change in the intestinal flora produced by feeding large quantities of this lactic acid producing organism may account for its therapeutic value. Its true action is unknown. The beneficial result is often, however, very striking. In cases in which no focus of infection whatsoever can be found and there is fever, the first and most essential part of the treatment is absolute rest in bed. A highly nourishing diet, including bulgarian buttermilk, massage of the muscles, with only slight rubbing of the joints, actinotherapy, Bier's hyperemia, and dry heat, have given some results. Every effort should be made to prevent contracture deformities. When the cases are seen in the chronic crippling forms, especially those types in which there is no evident infection, the same treatment is given; that is to say, treatment by massage, dry heat, etc. For the chronic cases, in a good state of nutrition, a sojourn at one of the spas seems to relieve the condition. One form of treatment which Warfield uses extensively is nonspecific protein therapy. He has used, for the most part, typhoid vaccine, but has never seen a case permanently benefited by the treatment. While temporary benefit has resulted from the injections in the chronic cases, so that patients unable to use their joints before the injection move them around freely the day following the injection, the good result has not been more than temporary. For the hypertrophic forms heat in all forms seems particularly helpful, and lessened pain and increased motion follow long continued use of Bier's hyperemia. However, when bony changes have taken place, it is impossible to bring the parts back to their original condition. In many cases of all types in which there are great deformities, orthopedic treatment can straighten out the joints and sometimes by operation in the mono-articular forms enable the patients to get around again with some degree of comfort. In the cases of spondylitis, orthopedic jackets often give great relief.

Nebraska State Medical Journal, Norfolk

8: 341-380 (Oct.) 1923

Tumors of Breast. B. B. Davis, Omaha.—p. 341.
Diagnosis of Obscure Tuberculosis. M. J. Breuer, Lincoln.—p. 347.
Goiter Problem. J. C. Waddell, Beatrice.—p. 351.
Goiter Problem. W. A. Rush, Beatrice.—p. 354.
Case of Psychosis. R. H. Spradling, Lincoln.—p. 358.
Intussuception in Children. H. B. Hamilton, Omaha.—p. 362.
Transfusion of Blood for Hemorrhage and Shock. G. L. Pinney, Hastings.—p. 365.
Chronic Empyema with Bronchopleural Fistula. C. H. Waters, Omaha.—p. 369.
Some Undesirable Effects of Deep Roentgen-Ray Therapy. C. Kail, Lincoln.—p. 372.

8: 381-420 (Nov.) 1923

Fractures of Femur. J. E. M. Thomson, Lincoln.—p. 381.
Scientific Knowledge Logically Applied in Treatment of Acute Urethritis. A. D. Munger, Lincoln.—p. 385.
Problems of Epilepsy. H. A. Wigton, Omaha.—p. 387.
Chronic Infectious Arthritis. L. T. Hall, Omaha.—p. 392.
Methods of Treatment of Affections of Antrum of Highmore. A. G. Lueschen, Columbus.—p. 397.
Point of Contact. R. McConaughy, York.—p. 399.
Primary Mumps Infection of Lacrimal Glands. A. E. Wade, Lexington.—p. 404.
Injurious Effects of Improper Light on Eyes. L. B. Bushman, Omaha.—p. 406.
Vacuum Sinus. G. A. Griot, Chadron.—p. 407.
Rat-Bite Fever. Report of Case. E. S. Wegner, York.—p. 408.
*Case of Acute Lymphatic Leukemia with Secondary Infection of Tongue. Death. M. Emmert, Omaha.—p. 410.

Acute Lymphatic Leukemia with Secondary Infection of Tongue.—Emmert's patient died twenty-four days after the first symptom of the tongue involvement. The gross and microscopic findings in this case illustrated well the gangrenous process in the mouth or throat and the rather limited extent of lymphocytic infiltration of the viscera seen in acute lymphatic leukemia. The acute lymphatic leukemia was manifested by moderate hyperplasia of the axillary, retroperitoneal and cervical lymph nodes, spleen and bone marrow, with lymphoid nodules of the lining of the large intestine, and a general decrease in red blood cells. There was gangrenous gingivitis with necrosis of the mandible and alveolar process of each maxilla: gangrene of the tip of the tongue; acute bronchopneumonia of the lower lobe of each lung with lymphoid nodules in the lower lobe of the left lung; obliterative pleuritis, fibrous pleuropericarditis, fibrous adhesions binding the liver to the transverse colon; coal dust pigmentation of the lungs; general marked anemia of all the viscera; anemia of kidneys and heart; edema of the soft structures of the anterior abdominal wall; a calcified nodule in the right lobe of the thyroid, and a slight hydrocele (right).

New York Medical Journal and Medical Record

118: 533-600 (Nov. 7) 1923

Treatment of Pyelitis by Ureteral Catheterization and Instillation of Kidney Pelvis. J. C. Hirst, Philadelphia.—p. 533.
Surgical Treatment of Puerperal Infection. H. B. Safford, New York.—p. 536.
Chemical Changes in Toxemia of Pregnancy. M. Kahn, New York.—p. 540.
Ingestion Glycosuria an Aid to Early Diagnosis of Pregnancy. C. F. Long and J. C. Hirst, Philadelphia.—p. 543.
Abortions. L. Drosin, New York.—p. 546.
Gumma of Cervix Uteri. H. A. Duncan, Philadelphia.—p. 550.
Partus Serotinus. W. A. N. Dorland, Chicago.—p. 551.
Meddlesome Obstetrics. J. R. McCord, Atlanta.—p. 552.
*New Theory of Menstruation. A. Young, Tallahassee, Fla.—p. 554.
Analysis of Twenty-Six Extrauterine Pregnancies. C. Mazer, Philadelphia.—p. 555.
*Use of Phloridzin in Early Diagnosis of Pregnancy. A. M. Hellman, New York.—p. 557.
Pus in Pelvis of Women. G. P. LaRoque, Richmond.—p. 559.
Importance of Palpation of Pelvic Ureters in Diagnosis of Abdominal Disease. D. W. Tovey, New York.—p. 563.
Significance of Inflammatory Ureteral Structure in Female. T. H. Cherry, New York.—p. 565.
*Nasal Dysmenorrhea. A. L. Levy, Jamaica, N. Y.—p. 568.
Differential Count of Appendicitis, Tubo-Ovarian Diseases and Infection of Uterine Cavity. A. J. Hinkelman, Oklahoma City.—p. 569.
Complete Congenital Absence of Vagina, Associated with Bilateral Hernias of Uterus, Tubes and Ovaries. D. Deutschman, New York.—p. 570.
*Postmortem Cesarean Section. M. J. Stone, New York.—p. 571.
New Type of Cesarean Technic. A. M. Judd, Brooklyn.—p. 572.
Dawn of Surgery. J. Wright, Pleasantville, N. Y.—p. 574.

Theory of Menstruation.—Young defines menstruation as a function established to meet the biologic requirements of fertilized ova. She says: Let us suppose that the fertilized ovum is discharged from the fallopian tube into the uterus; it is nothing more than reasonable to conclude that the menstrual function has had some share in preparing for its reception.

Use of Phlorizin in Early Diagnosis of Pregnancy.—Hellmann has used the technic of Kamnitzer and Joseph, who have tried to show that glycosuria can be produced artificially in the early months of pregnancy by the intramuscular injection of phlorizin. In the nonpregnant woman such an injection should not produce glycosuria, nor is it likely in those more than twelve weeks pregnant. Hellmann has made the test twenty-four times on twenty-three patients. In seventeen cases in which the tests were negative fifteen patients were found not pregnant but two were later found to be pregnant. In the seven cases giving positive results the patients were all pregnant.

Nasal Dysmenorrhea.—Levy reports what he terms a true case of nasal dysmenorrhea, occurring in a girl, aged 21. He used a 20 per cent. solution of cocain and advised having the intranasal genital spots cauterized.

Postmortem Cesarean Section.—Stone removed the baby in this case exactly one minute after death of the mother by cesarean section. Spontaneous respiration did not occur, but after vigorous efforts at resuscitation the child began to breathe rhythmically thirty minutes after delivery. It took feedings very well through a dropper; cried lustily, maintained a healthy pink color, and gave every indication that it might survive. However, fifteen hours later it became cyanotic, breathed with difficulty, and promptly died. The mother had been a nonipara and had a rheumatic heart, but died of bronchopneumonia.

Philippine Journal of Science, Manila

23: 237-305 (Sept.) 1923

Diagnoses of Hainan Plants. II. E. D. Merril.—p. 269.
Composition of Pili Nut Oil. A. P. West and S. Balce.—p. 269.
Effect of Composition on Complete Hydrogenation of Some Philippine Oils with Nickel Catalyst. A. P. West and L. Gonzaga.—p. 277.
Some New Malayan Carabide, Especially Philippine. K. M. Heller.—p. 295.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

64: 255-353 (Oct.) 1923

*Pathology of Parkinsonian Syndrome Following Lethargic Encephalitis. Occurrence of Calcification. D. McAlpine.—p. 255.
Variations in Form of Reflex Movements, Notably Babinski Plantar Response, Under Different Degrees of Spasticity and Under Influence of Magnus and DeKleijn's Tonic Neck Reflex. F. M. R. Walshe.—p. 281.
*Cerebellar Localization. S. Ingvar.—p. 301.
*Occurrence in Osteitis Deformans of Lesions of Central Nervous System. Report of Four Cases. W. G. Wyllie.—p. 336.

Pathology of Parkinsonian Syndrome.—An account is given by McAlpine of the histologic findings in two cases of parkinsonian syndrome following epidemic encephalitis. The most constant findings were subacute inflammatory changes and recent perivascular hemorrhages. In one case, the substantia nigra showed marked degenerative changes, and in the other this area appeared to be normal; but large hemorrhages of arteriosclerotic origin in the basal ganglions considerably modified the negative findings in the substantia nigra in the second case. An account is given of fourteen similar cases reported in the literature, in all of which the substantia nigra was affected. Calcification in the anterior part of the globus pallidus was found in six cases of encephalitis, in one case as early as the fourth day of the disease. The calcification was found both in the vessel walls and in the form of globules. The occurrence of fat globules was noted in one case, and the relation between these and the calcified globules was studied. A short acount is given of other conditions in which calcification occurs in the brain, and the pathogenesis and significance of these changes are discussed.

Cerebellar Localization.—The conclusions reached by Ingvar from his intensive study of this problem are: the basal portions of the cerebellum, situated immediately above the fourth ventricle, are phylogenetically the oldest parts of the cerebellar cortex. Anatomic facts indicate that they are endowed with important functions. The most characteristic feature of these basal regions is that they receive fibers directly from the vestibular nerves. The histologic uniformity of the cerebellar cortex, even in the human cerebellum, indicates that function and organization of function are probably essentially the same in the whole organ. After lesions of the basal parts, motor phenomena known as "forced movements" occur. Since the forced movements resemble strongly those appearing after lesions of the vestibular apparatus, it is logical to regard the forced movements after cerebellar lesions as being due to disturbance of the vestibular innervation of these parts. Both the vestibular and cerebellar forced movements always take place in a definite plane of space. Since those associated with lesions of the anterior and posterior parts of the vermis resemble those produced by lesions of the vertical semicircular canal, it is logical to conclude that this canal is specially connected with these regions of the cerebellum. As the basal regions of the cerebellar cortex with their intimate vestibular connections are, in the literal sense of the word, a sort of calyx which encloses the major part of the cerebellum, which is developed later in phylogenesis, so the functions of the labyrinth may be considered to include in embryo those of the cerebellum. There is during phylogenetic development a tendency of regression of the vestibular influence on the cerebellum, whereas the spinal influence increases (strongly developed spinocerebellar tracts in higher animals). A long series of [illegible] rime[illegible] the cerebellum has shown that in animals [illegible] east to a considerable extent, represented [illegible] th cerebellar cortex (lobulus ansopara the center of the forelimb is situated rostrad to that of the hind limb. Two cases are described by Ingvar which support the view that in the human cerebellum there is the same arrangement of the centers of homologous parts. In a case of tumor in the right lobulus biventer, the only clinical symptom was cerebellar ataxia of the right leg. In a case in which the right hemisphere was injured extensively by an operation, postmortem examination showed that a large part of the hemisphere (semilunar lobes, lobulus gracilis, part of lobus biventer) had been destroyed completely. The severe general ataxia that followed the operation disappeared gradually except in the right arm, though a slight disturbance of a cerebellar type was also noticed in the right leg.

Lesions of Central Nervous System in Osteitis Deformans.—Wyllie reports two cases of compression of the spinal cord in patients suffering from osteitis deformans, and two cases of atrophy of the optic nerves in patients whose skull was affected by osteitis deformans. In both cases diplopia also occurred, indicating most probably an injury of one or more of the ocular nerves. Several of the long bones were involved in one of these cases, and the vertebral column in the other.

British Medical Journal, London

2: 791-846 (Nov. 3) 1923

Anesthetics from Surgeon's Point of View. W. Trotter and W. I. de C. Wheeler.—p. 791.
Ventriculography as Aid in Localization of Intracranial Tumors. I. A. A. McConnell and G. Jefferson.—p. 796.
Anesthesia for Children. H. Sington.—p. 801.
Fatalities from Anesthetics. A. L. Flemming.—p. 804.
Anesthesia by Gas-Oxygen-Ethanesal and Gas-Oxygen-Chloroform-Ethanesal Combinations. H. E. G. Boyle.—p. 806.
Treatment of Hemorrhoids by Interstitial Injections. J. Dunbar.—p. 808.
Hemophthalmus in Association with Tuberculous Foci in Choroid. J. D. Cummins.—p. 809.
Appendicitis and Intussusception in Dog. Lymphaticostomy for Septic Peritonitis. J. D. Malcolm.—p. 809.
Cases Resembling Paralytic Ileus. W. W. Jeudwine.—p. 810.
Amyl Nitrite Poisoning. W. Broadbent.—p. 811.
Cholelithiasis with Situs Inversus. E. S. Frischmann.—p. 811.
Histology of Myeloma (Parasite?). T. H. Burlend and D. J. Harries.—p. 811.

British Journal of Ophthalmology, London

7: 497-544 (Nov.) 1923

Case of Implantation Cyst of Iris and Ciliary Body. W. B. Brownlie and H. Neame.—p. 497.
Intracisternal Injections in Treatment of Syphilitic Optic Atrophy. S. R. Gifford, Omaha.—p. 506.
Technic and Reaction of Intracranial Mercuric Bichlorid Injections. J. J. Keegan.—p. 522.
Hemianopia as Sole Clinical Feature in Untreated Secondary Syphilis. A. W. S. Sichel and A. R. Fraser, Cape Town, S. A.—p. 525.

Edinburgh Medical Journal

30: 422-564 (Oct.) 1923

*Generalized Osteitis Fibrosa. J. W. Dawson and J. W. Struthers.—p. 422.

Generalized Osteitis Fibrosa.—This paper by Dawson and Struthers is really a monograph based on extended study in the research laboratory of the Royal College of Physicians of Edinburgh. An endeavor is made to describe the essential histologic features in a case of generalized osteitis fibrosa, and to indicate the conceptions underlying the pathologic process involved in bone dystrophies. The view put forward relates osteitis fibrosa to an initial disturbance of the controlling activity of the bone cell over its calcium metabolism—an activity which is normally regulated by a hormone from the parathyroid glands. The process of decalcification is thus reduced to a defective functioning of the bone cell, following damage by an agent circulating in the blood or deranged hormone control. The damage to the bone cell may be caused by any one of the factors outlined above, especially toxins resulting from faulty tissue metabolism, and those elaborated in the intestinal tract. The automatic regulation of the supply of hormones, or, in other words, the call of the damaged bone cell for an increased supply of hormone, leads to hyperactivity of the parathyroid gland—a hyperactivity which results in hyperplasia, and in a possible perversion of the hormone, for in spite of its hyperplasia, the protective regulation of the activity of the bone cell is insufficient. The individuals and the bones affected may be related to factors inherent in the individual.

Indian Medical Record, Calcutta

43: 273-304 (Oct.) 1923

Osteopathy. D. Graham.—p. 273.
White Spots in Retina of Eye and Their Relation to Toxemias. R. N. Pradhan.—p. 275.
Dysenteries in Bengal. P. Ganguli.—p. 276.
Case of Tetanus Successfully Treated with Phenol Injections. K. R. Dharmadhikary.—p. 288.

Japan Medical World, Tokyo

3: 207-229 (Oct.) 1923

Experimental Investigation of Transfer of Hemolysin and Precipitin into Bile and Saliva of Immunized Animals. N. Kimura.—p. 207.
*Function of Suprarenal Cortex. Relation to Other Endocrine Glands. Y. Tokumitsu.—p. 212.
Prevention and Occurrence of Cholera in Japan. Y. Iimura.—p. 217.

Function of Suprarenal Cortex.—Tokumitsu is of the opinion that the suprarenal cortex is entirely independent of the medulla. Its function is antagonistic to that of the latter, and inhibits epinephrin secretion. The suprarenal cortex has a synergistic action with the pancreas for carbohydrate metabolism. Atrophy of the cortex is seen in the majority of cases of diabetes. It is especially marked when pancreatic changes are slight in severe diabetes. Glycosuria is caused when a large part of the cortex is removed even when the pancreas is not degenerated. The suprarenal cortex is functionally antagonistic to the thyroid. It is distinctly so for carbohydrate metabolism. The thyroid hypertrophies when the suprarenal atrophies. When hypertrophy is advanced, it shows the picture of struma Basedowii. The suprarenal cortex accelerates the pancreatic secretion. This accelerating action is the same even after the vagus or sympathetic nerves are cut. Its action is independent of secretin. This accelerating substance in the cortex lowers the blood pressure. It does not coagulate blood. It is soluble in water or alcohol. It is difficult to extract with ether from water solution. The active substance is not protein or fat. The cortex is functionally antagonistic to the anterior lobe of the hypophysis cerebri. It has no close relation with the eosinophil cells of the latter. The cortex is vital for life. Life can be maintained with one quarter of the cortex. The medulla has no influence on life. The thyroid and the suprarenal medulla are functionally synergistic. The thyroid extract accelerates epinephrin secretion. The anterior and posterior lobes of the hypophysis are antagonistic for epinephrin secretion. Pancreatic extract slightly inhibits the secretion of epinephrin. Extracts of the pineal body or of the corpus luteum accelerate the secretion of epinephrin. But thymus extract does not possess such action. When the cortex or the medulla of the suprarenal atrophies gradually gastric ulcer is not formed.

Journal of State Medicine, London

31: 501-550 (Nov.) 1923

Serologic Classification of Gonococci. W. J. Tullock.—p. 501.
Epidemiology of Bubonic Plague in Great Britain, with Special Reference to Its Spread by "Pulex Irritans." W. A. Lethem.—p. 508.
Head Louse Problem. M. Gross.—p. 516.
Handling of Chemical and Bacterial Problems in Preserving Food. C. M. Dugdale.—p. 522.
Coordination of Measures for Control of Tuberculosis of Lungs. E. W. Hope.—p. 529.
Prophylactic Treatment of Dental Caries. S. W. Fisk.—p. 534.

South African Medical Journal, Johannesburg

19: 33-66 (Sept.) 1923

Management of Difficult Deliveries. J. McGibbon.—p. 33.
Blood Sugar and Diabetes. A. D. Stammers.—p. 38.
Johannesburg Municipal Venereal Clinic. H. Gluckman.—p. 48.
*"Vesicalization" of Stump of Cervix Uteri. E. O. Ashe.—p. 53.

Vesicalization of Stump of Cervix Uteri.—Following the removal of a fibrocystic tumor of the ovary, Ashe's patient developed a leakage of urine from the vagina, which could not be stopped by ordinary means. Finally, the cervix was thoroughly scraped out and "rawed" with sharp spoons, and was then firmly stitched up and entirely occluded by six deep catgut sutures, passed anteroposteriorly. Part of the cervix was, therefore, "vesicalized" or taken up into the bladder wall.

drainage, and especially after aseptic intervention. The paraffin-coated substance attracts the secretions from the depths, while it never sticks to the tissues. It behaves in every respect like natural linings of the body cavities.

Kidney Fistulas.—Trogu discusses the pathogenesis, diagnosis and treatment of fistulas into the kidneys when conditions do not forbid closing this outlet.

Prensa Médica Argentina, Buenos Aires

10: 281-304 (Sept. 20) 1923

*Present Status of Cardiac Arrhythmia. G. N. Martinez.—p. 281.
*Juvenile General Paralysis. J. J. Moyano.—p. 292.
*Tunnels in Amputation Stumps. G. Bosch Arana.—p. 296.

Arrhythmias.—Martinez calls his article "The Present Synthetic Conception of Arrhythmias." He takes up each of the five great groups of arrhythmias in turn, citing cases from his own experience to sustain his statements where he differs from certain authorities.

Juvenile General Paralysis.—Moyano published in 1914 a case of tabes in a child, and he now gives an illustrated description of a girl of 16 with typical general paralysis Such cases teach the necessity for special vigilance in specific treatment of children of syphilitic parents with a tendency to neurosyphilis.

Tunneling Short Amputation Stumps.—Bosch Arana shows the great advantage of having one or two tunnels through the muscles of a short stump to hold cords or straps which fasten to the interior of the artificial leg. By this means the prosthesis is under better volitional control, as he illustrates. A simple tunnel is all that is needed, but it should be as wide as possible, and be trained for its work by an interim crutch device, the strap connecting the tunnel with the crutch near the floor.

Revista de Medicina y Cirugía de la Habana, Havana

28: 587-622 (Sept. 10) 1923

Chrysops Guiterasi; New Species. W. H. Hoffmann.—p. 587.
*Dacryocystitis in the New-Born. J. L. Dehogues.—p. 594.

Dacryocystitis in the New-Born.—Dehogues relates that conjunctivitis in infants in Cuba is often merely a congenital dacryocystitis which has escaped detection. Catheterization of the lacrimal tract restored its permeability and cured at once in 75 per cent. of his fifty-one cases.

Semana Médica, Buenos Aires

1: 1189-1244 (June 28) 1923

The Basal Metabolism from the Clinical Standpoint. D. Speroni.—p. 1189.
*Purification of Drinking Water. C. A. Grau.—p. 1196.
*Tuberculin in Surgical Tuberculosis. A. Rodriguez Egaña.—p. 1198.
Pasteur's Life and Work. Gregorio Aráoz Alfaro.—p. 1203.
Insulin in Treatment of Diabetes. D. T. R. Davison.—p. 1212.
Belgian League for Mental Hygiene. F. Wilson.—p. 1225.

Purification of Drinking Water.—Grau advocates as rapid and certain in its effects, chemical sterilization with a mixture of iodin, sodium hyposulphite and alcohol. Tests of waters contaminated with millions of colon and typhoid bacilli and treated as described were always found sterile. Two solutions are used: Solution A is made by dissolving 8 gm. of iodin and 2 gm. of potassium iodid in 90 c.c. of alcohol in a 100 c.c. vessel, shaking occasionally; then 2 c.c. of glycerin is added. Solution B is made with 15 gm. of sodium hyposulphite and 45 c.c. of distilled water, in a similar vessel; when dissolved, 5 c.c. of glycerin is added, and then 40 c.c. of alcohol. These solutions keep well. To 1 liter of the drinking water is added 5 drops of solution A; after waiting twenty minutes, agitating the water occasionally, 5 drops of solution B is added. The water has no disagreeable taste, and the chemicals used are harmless or directly beneficial. The vessels used must not be of wood; wood absorbs the iodin. This method of sterilization is designed especially for rural school buildings without a good water supply.

Tuberculin Reactions in Bone and Joint Tuberculosis.—Rodriguez Egaña tabulates the response in 205 children with bone and joint disease to whom tuberculin tests were applied by the skin, intradermal and ocular technics, and the Moro percutaneous salve method. The findings are compared further with those in 100 healthy foundlings. In the 200 presumably tuberculous cases, the reaction was positive in all but 7; the skin test eliciting a positive response in 93.03 per cent.; the intradermal in 75.25; the ocular in 33.15, and the salve in 56.72. The negative response in 2 of the 7 not reacting was due to the advanced cachexia. In the 5 other negative cases, the course confirmed the probably nontuberculous nature of the hip-joint disease.

2: 133-184 (July 26) 1923

*Colpohisterectomy for Cancer of Cervix. J. Salvador.—p. 133.
Pylitis from Pyocyaneus Bacillus. G. Foley.—p. 147.
Pharmacodynamic Action of Certain Alkaloids. M. Soto.—p. 148.
Cystocele in Diverticulum of Bladder with Calculus. Chueco et al.—p. 158.
Dystocia from Rigidity Due to Acute Inflammation. Bazán.—p. 160.
Artificial Pneumothorax Invading Other Side. A. Cetrángolo.—p. 162.
What Are the Supports of the Kidney? C. de Sanctis.—p. 164.
*Width of Aorta in Inherited Syphilis. E. A. and J. J. Beretervide.—p. 166.

Treatment of Cancer of Uterine Cervix.—Salvador's illustrations show his method of inverting the cervix, with its cancer and the posterior vagina, after amputating the uterus above through an abdominal incision. He uses a long instrument with a toadstool-like tip, with prongs beneath. This is pushed up through the cervix stump, and it inverts the stump as the "invertor" is pulled out through the vulva, bringing cervix and vagina with it. The walls of the vagina are then sutured together behind, through the abdomen, and the whole inverted mass is cut off just below.

Large Diameter of Aorta in Inherited Syphilis.—The Beretervides state that the diameter of the ascending aorta is about 1.3 cm. in healthy children, but in syphilis it is abnormally large. They call discovery of this exaggerated diameter of the ascending aorta a new symptom of congenital syphilis, one easy to detect with the roentgen rays and with less chances of error than most signs. An abnormally dense shadow is likewise characteristic. Their article is based on 77 orthodiagrams taken of 52 children with inherited syphilis and compared with those from healthy children. In one child, aged 2½, the aorta measured 1.7 cm.; in others at the age of 4, 2.1 cm; at the age of 8 and 9, 2.2 cm.; at 13, 2.3 cm.

Archiv für klinische Chirurgie, Berlin

125: 417-632 (Sept. 22) 1923

*Cholelithiasis. H. F. O. Haberland.—p. 417.
*Total Resection of Cancerous Stomach. G. Kelling.—p. 458.
*Acute Dilatation of the Stomach. R. Girgensohn.—p. 463.
*Congenital False Diaphragmatic Hernia. O. Wiemann.—p. 471.
Sulphosalicylic Acid as a Disinfectant. T. v. Liebermann.—p. 482.
Shape and Position of Viscera. F. Walcker.—p. 490.
Position of Transverse Colon. P. Kuprijanoff.—p. 518.
Idem in Relation to Ileus. P. Kuprijanoff.—p. 535.
Action of Hexamethylenamin by the Vein. G. von Takáts.—p. 544.
*After Esophagogastric Anastomosis. J. Palugyay.—p. 554.
*Circumscribed Serous Meningitis. R. Demel.—p. 561.
Changes in Suprarenal Cortex in Peritonitis and Sepsis. G. Walter Deucher.—p. 578.
Chronically Recurring Appendicitis. E. Liek.—p. 597.
The Process of Arresting Hemorrhage. G. Magnus.—p. 612.
Hernia in Abdominal Wall. A. A. Kosyrew.—p. 625.

Cholelithiasis.—Haberland compares the recent literature on this subject (9 pages of bibliography) with the experiences in Frangenheim's surgical service at Cologne. Latent gallstones were found in 10.5 per cent. of the cadavers, and these "latent" concretions had misled the diagnosis in 27 of the 279 patients; in 17 others there was a concomitant surgical affection of the stomach. Cholelithiasis had been erroneously diagnosed in one case each of appendicitis, cancer of liver or bladder, and cirrhosis of the liver, and 3 cases of gastric ulcer. In differentiation, Läwen found a paravertebral injection of procain useful. With gastric ulcer, anesthetization of the seventh dorsal nerve abolished the pain; with appendicitis, of the first and second right lumbar nerves, while gallstone colic was arrested at once by thus blocking the tenth dorsal nerve.

Total Resection of the Stomach for Cancer.—In Kelling's two cases in men in the fifties, the esophagus was sutured to the jejunum. One lived in good condition for nine months and the other for five before metastasis developed. The men felt full after eating, but their hunger was not sated. They had no pains, but they wanted to eat nearly all the time. Kelling ascribed this to the poor utilization of the food, the blood thus lacking its normal quota of nourishment.

Acute Dilatation of the Stomach.—Girgensohn insists on the necessity for distinguishing two groups: the cases of gastric atony or paralysis of the stomach, and the cases with acute occlusion of the duodenum. The two may be combined. In the case he describes, the young man died the fourth day after the onset of acute paralysis of the stomach. Necropsy revealed a perforation in a patch of gangrene at two points in the stomach. The record of seventeen deaths in twenty-two operative cases of acute paralysis of the stomach is not encouraging, although all agree that it is of functional origin. Nearly all the cases have occurred in persons eating a hearty meal after exceptionally long deprivation of food. When vomiting keeps up unusually long after an operation, this indicates the first stage of atony, and no food, especially in large amounts, should be given by the mouth. Postural treatment and the stomach tube should not be too long delayed. After paralysis is once established the stomach tube must be used until gastric functioning is entirely normal once more, perhaps for two weeks.

False Diaphragmatic Hernia.—Wiemann refers to congenital nonincarcerated diaphragmatic hernia, describing a case in a boy of 16 with hypoplasia of the lung on that side.

After Esophagogastric Anastomosis.—Palugyay gives the results of tests of a woman with rebellious cardiospasm compelling the short-circuiting of the passage. Heyrovsky's technic was applied, and the outcome is highly satisfactory. No regurgitation into the esophagus occurs even with extreme tests.

Serous Meningitis.—Demel describes a case of circumscribed serous meningitis which presented the clinical picture of a brain tumor. In 48 cases he has collected, the process was in the posterior cranial fossa in 16. Recovery followed in 89.7 per cent. of the 39 operative cases. Trauma and infection are important factors, as also an angioneurotic tendency. In his case there seemed to have been a congenital defect in the sylvian region predisposing to cyst formation, but no symptoms had been observed until the man was 34. Then symptoms developed suggesting a brain tumor, and after three years puncture released 0.12 liter of clear fluid. The man died six days later.

Deutsches Archiv für klinische Medizin, Leipzig

143: 1-128 (Aug.) 1923

*Treatment of Diabetes with Roasted Starches. E. Grafe.—p. 1.
*Ventricular Fibrillation. S. de Boer.—p. 20.
Thyroid-Genital Insufficiency. L. Borchardt.—p. 35.
Diabetic Edema. W. Boenheim.—p. 46.
Associated Spleen and Liver Disease. G. Lepehne.—p. 53.
*Strophanthin in Chronic Heart Disease. Fraenkel and Doll.—p. 65.
*Treatment of Diabetics with Roasted Starches. E. Grafe and Otto-Martiensen.—p. 87.
*Blood Sugar in Diabetics Treated with Roasted Starches. H. Magin and K. Turban.—p. 97.
Lipoid Infiltration of Kidney. K. Heusler.—p. 106.
*Angina Agranulocytotica. A. Leon.—p. 118.

Treatment of Diabetes with Roasted Starches.—Grafe gave fifty-four diabetics different foodstuffs (bread, potatoes, rice, oats, etc.) which had been roasted or sautéed in fat in a pan over the fire for fifteen or twenty minutes, after having been cooked soft and drained dry. His six pages of tabulated details confirm the superiority of starches thus altered by roasting, the bread toasted brown. The action against acidosis was distinct.

Ventricular Fibrillation.—De Boer finds that ischemia of any part of the heart musculature predisposes the ventricle to fibrillation. An affection of the conducting system is not necessary.

Strophanthin in Chronic Heart Disease.—Fraenkel and Doll believe that the frequently feeble action of digitalis in aortic insufficiency is due simply to the fact that such patients do not get decompensated, as long as they have any appreciable amount of reserve heart energy. The authors are strongly opposed to the opinion that digitalis is dangerous in patients with infarctions, or hypertension. The only contraindication is the tendency to heart block, though digitalis is indicated in cases of complete block with heart insufficiency. They recommend intravenous injections of strophanthin. The amount which is necessary to obtain results is the best measure of the degree and prognosis of the insufficiency. The efficient and usual daily dose is 0.5 mg. of strophanthin. It is advisable, sometimes, to fraction this dose at first, and increase it later to 0.7 mg. The maximal dose is between 0.8 and 1.2 mg. but these require longer intervals.

Treatment of Diabetics with Roasted Starches.—Grafe and Otto-Martiensen did not find the expected increase in the respiratory quotient in most of their experiments on metabolism of roasted carbohydrates. This may be due to their slow absorption.

Blood Sugar in Diabetics Treated with Roasted Starches.—Magin and Turban found that roasted carbohydrates increased the blood sugar in diabetics much less than equivalent amounts of untreated carbohydrates.

Agranulocytosis.—Leon describes a case of an apparently new syndrome discovered a year ago by W. Schultz, who has since observed five other cases. The disease occurred in middle-aged and old women. It started with high fever and general malaise. Very soon ulcerations and gangrenes set in, affecting always the pharynx (especially the tonsils, sometimes the teeth, tongue, larynx and vagina). There were no hemorrhages. The spleen and liver were sometimes enlarged. The white cells were markedly decreased (1,800 down to "almost none" in 1 c.mm.) and the decrease affected especially the granulocytes (neutrophils and eosinophils). The blood platelets and red cells were normal, the antiproteolytic ferment of the serum was normal. The disease ended fatally in three to fourteen days. The bone marrow did not contain leukocytes nor myelocytes. Megakaryocytes were present. She sees in this a confirmation of Wright's theory of the origin of the blood platelets.

Deutsche medizinische Wochenschrift, Berlin

49: 1197-1228 (Sept. 21) 1923

*Vaccination Against Tuberculosis. P. Uhlenhuth.—p. 1197.
*Localization of Consciousness. N. P. Tendeloo.—p. 1200.
Digitalis Treatment. C. Hirsch.—p. 1202. Conc'n.
Treatment of Sterility in Women. R. Zimmermann.—p. 1206.
Malignant Brain Tumors. O. Kingreen.—p. 1209.
Acute Pancreatitis. E. Glass.—p. 1210.
Treatment of Wounds with Sulphur Dioxid. Rottsahl.—p. 1212.
The Meinicke Flocculation Test. Fey.—p. 1213.
Chemotherapy in Lepra and Tuberculosis. Bieling.—p. 1214.
Physicians and Social Insurance. S. Alexander.—p. 1216.
Insurance Company for Physicians. Bok.—p. 1216.

Vaccination Against Tuberculosis.—Uhlenhuth reports on his various attempts to induce immunity against tuberculosis. He injected animals with bacilli treated with antiformin or made fat-free. The failures convinced him that it is impossible to obtain immunity against tuberculosis with dead bacilli. Yet he failed just as completely when using old, almost avirulent living cultures. The serum from animals which had been injected with very large doses of such cultures (up to 60 gm.) was without any therapeutic or prophylactic value. He can find no experimental explanation for the favorable results obtained by Czerny with this serum.

Localization of Consciousness.—Tendeloo says that "a completely uninjured constellation of all the psychic factors is indispensable for clear consciousness." It presupposes a connection between all the psychic centers. A severe disturbance occurs only with extensive lesions.

49: 1229-1252 (Sept. 28) 1923

Hysteria. M. Rosenfeld.—p. 1229.
Vital Staining. L. Karczag and L. Paunz.—p. 1231.
*Extraction in Pelvic Presentation. E. Sachs.—p. 1233.
Scanzoni's Forceps. F. Klee.—p. 1236.
Multiple Bone Tumors. G. Mosczytz.—p. 1237.
Action of Tuberculin. H. Rieckenberg.—p. 1238.
Dold's Reaction in Spinal Fluid. G. Rochow.—p. 1239.
Periarteritis Nodosa. G. Kopp.—p. 1239.
*Epigastric Neuralgia. Philippsthal.—p. 1240.
Improved Technic for Ultraviolet Ray Treatment in Tuberculosis. Landgraff.—p. 1241.
Conscientious Objectors in England. H. Böing.—p. 1242.

Extraction in Pelvic Presentation.—Sachs discusses the modern technic of extraction in pelvic presentation. He emphasizes the advantage of "letting the baby hang" between the attempts at extraction, so that it assumes the natural rotation, with which the extraction might have interfered. Every extraction should be aided by expression and good contractions of the uterus.

Epigastric Neuralgia.—Philippsthal has observed ten patients with epigastric pains which resembled those in ulcers of the stomach. Injection of procain into the painful spot gave relief. Addition of alcohol cured two, while five were refractory to all measures until relieved by excision of the painful spot, the seat of the neuralgia. In two of the cases, asthma accompanied the attacks and subsided at the same time (after operation in one case, conservative treatment in the other). In four of the cases a tendency to neurasthenia was manifest. Subsidence of the pain after injection of procain differentiated the neuralgia from organic disease.

Medizinische Klinik, Berlin

19: 1247-1278 (Sept. 16) 1923

*Progonic Triad. Westenhöfer.—p. 1247.
Abdominal Colic. Eschbaum.—p. 1255.
*Treatment of Gonorrhea. H. Hecht.—p. 1257.
*Reaction of Feces in Infants. E. Hainiss.—p. 1258.
*Training of the Feebleminded. E. Bormann.—p. 1260.
Abdominal Affections and Influenza. Esau.—p. 1261.
Hypnoid Neuroses. H. Rehder.—p. 1262.
Treatment of Flatfoot. E. Fischer.—p. 1264.
Treatment of Scabies. Schübel.—p. 1265.
*Reactivity of Asthenics. E. Baráth.—p. 1265.
Practical Gynecology. E. Runge.—p. 1266. Cont'n.
Present Status of Etiology of Tuberculosis. H. Gerhartz.—p. 1267.
Present Status of Skin Diseases. F. Pinkus.—p. 1268.

Progonic Triad.—Westenhöfer found in about 25 or 30 per cent. of necropsies three allied conditions, namely, lobulation of the kidneys, marked indentation of the spleen, and a funnel-shaped appendix. Such forms exist in some animals. It is interesting to note that the first two are found especially in different animals living in or near the water. Since these forms are normal in new-born children, he differentiates them from atavism, and has coined a similar Greek term for them: progonism. He began his research while residing in Chile and attributes the rarity of death from appendicitis, in spite of the noninterference of surgeons in the acute phase, chiefly to the funnel-shaped form of the appendix, though it is present only in 25 or 30 per cent. of the population and probably to a similar extent in Europeans. Neoplasms are another manifestation of progonism due to the inherent ability of single cells to reproduce and lead an individual life. We must look for explanation of these qualities to phylogenesis—to our unicellular ancestors. He believes that malignant tumors are just as good, if not better, evidence of such origin of man as embryology and comparative anatomy.

Treatment of Gonorrhea.—Hecht uses for abortive treatment of acute cases injections of a 5 per cent. protein silver salt solution with an anesthetic. Subacute cases treated with intramuscular injections of milk did well. The abortive treatment of acute cases must be stopped if the second portion of the urine is not absolutely clear, if the patient has much pain between the treatments, if the secretion becomes blood stained, or if there is edema of the meatus, pollakiuria or pain in the epididymis.

Reaction of Feces in Infants.—Hainiss examined the acidity of stools of breast-fed infants. He found the best increase in weight at a p_H between 5 and 6. Infants who did not increase in weight had a neutral or alkaline reaction, which is not favorable for the growth of *Bacillus bifidus*. Addition of sour skimmed milk corrected the condition.

Training of the Feebleminded.—Bormann examines the power of perception, concentration and practical sense in defective children. The first two qualities determine the possibility of school instruction, while the last is the important factor in the future usefulness of the feebleminded. He found his opinion confirmed by the development of forty-nine children. They had been examined for the first time in the years 1909 to 1916.

Reactivity of Asthenics.—Baráth found that persons with an asthenic habitus produced lower agglutinin titers after injections of typhoid vaccine than other patients.

Münchener medizinische Wochenschrift, Munich

70: 1217-1242 (Sept. 28) 1923

*Heart Palpitation. G. Katsch.—p. 1217.
*Treatment of Pleural Empyema. A. Herrmannsdorfer.—p. 1219.
Treatment of Meningeal Syphilis. W. Gennerich.—p. 1221.
*Growth of Bones. W. Müller.—p. 1225.
Germs in Organs. Huntemüller.—p. 1226.
Amyloid Degeneration of the Liver. H. Schrank.—p. 1227.
Atrophic Rhinitis. R. v. Scheven.—p. 1228.
Bullet in Pelvis. A. Lehrnbecher.—p. 1228.
Sedimentation of Erythrocytes. E. Trömner.—p. 1229.
*Esophageal Stenosis. A. Hirsch and J. Wagner.—p. 1229.
Treatment of Placenta Praevia. Opitz.—p. 1230.

Heart Palpitation.—Katsch observed in intelligent patients two kinds of palpitation: some felt it in the systole, others in the diastole. Combinations occur. He believes that it is always a sign of a disturbance of the harmony of the tonic and dynamic factors of the circulation.

Treatment of Pleural Empyema.—Herrmannsdorfer reports from Sauerbruch's clinic good results with pepsin treatment of fibrinous pleural empyemas. He infuses through the drainage tube up to 150-250 c.c. of the following solution: Pepsin, 20 gm.; hydrochloric acid, 2; phenol, 2; distilled water to 400 gm. He leaves the solution in the cavity for six to twelve hours. If all the fibrin is not then dissolved, the infusion is repeated. It is not impossible that the solution might dissolve fine adhesions, and change an encapsulated into an open pyothorax, although this did not occur in his experience. The whole drainage method is contraindicated in empyemas due to an abscess in the lung or neighboring organs, which require larger operations.

Growth of Bones.—Contrary to most authors, Müller finds that the longitudinal growth does not require functional stimuli. It is inhibited by pressure.

Esophageal Stenosis.—Hirsch and Wagner describe a case of recurring stenosis of the esophagus which was due to invagination of the organ.

Wiener klinische Wochenschrift, Vienna

36: *671-686 (Sept. 20) 1923*

*Elimination of Dyes by the Stomach. P. Saxl and D. Scherf.—p. 671.
*Insulin and the Blood Pressure. Klemperer and Strisower.—p. 672.
Anetodermia in Relation to Acrodermatitis. G. Nobl.—p. 673.
Intraspinal Arsphenamin Treatment. E. v. Thurzó.—p. 675.
Artificial Abortion. K. Neuwirth.—p. 677.
Medical Welfare Work. K. Ullmann.—p. 679.

Elimination of Dyes by the Stomach.—Saxl and Scherf have continued their investigations on the excretion of dyes through the stomach. They found that only fat soluble dyes (methylene blue, neutral red) are thus eliminated. Those which are only water soluble (indigocarmin, congo red, fluorescein) do not pass into the gastric juice. The excretion has no particular localization. The only practical result was the discovery that the dye does not pass into the interior of the stomach in cases of complete achylia.

Insulin and the Blood Pressure.—Klemperer and Strisower found that an injection of 10 units of insulin lowers the blood pressure in diabetics with hypertension. The action is slow, and the pressure reaches its minimum in about two hours. In diabetics with normal blood pressure, a lowering of only 5 to 15 mm. of mercury was observed, which may be within the physiologic limits. Injections of epinephrin solution induced the typical increase in blood pressure without regard to a previous or simultaneous injection of insulin. The blood pressure was not lowered by insulin in normal rabbits in spite of hypoglycemia, nor in three cases of chronic nephritis with hypertension.

36: 687-704 (Sept. 27) 1923

*Blood Transfusion. K. Nather and A. Ochsner.—p. 687.
*Sex Papillae on the Labia Minora. B. Lipschütz.—p. 692.
*Gangrene in Lead Poisoning. F. Kazda.—p. 694.
History of Medicine. I. Fischer.—p. 696.

Blood Transfusion.—Nather and Ochsner describe and illustrate the technic of blood grouping, and Percy's transfusion method.

Sex Papillae on the Labia Minora.—Lipschütz found on the inner surface of the labia minora a crescent shaped group of papillae resembling the fungiform papillae of the tongue. They appear between the twelfth and fourteenth years and contain many terminal bodies. He believes, therefore, that they are accessory organs of libido.

Gangrene in Lead Poisoning.—Kazda reports three cases of gangrene of the legs in young printers, aged 28 to 46. Although varices are a common occurrence in that trade, there were *none* in these cases. This confirms his observation that the formation of varices seems to require a good function on the part of the arteries.

Zeitschrift für klinische Medizin, Berlin

97: 189-482 (Sept. 20) 1923

Iodin and Production of Erythrocytes. G. Holler.—p. 189.
*Gas Metabolism. W. Arnoldi and J. Ferber.—p. 208.
*Chronic Septicemias. F. E. R. Loewenhardt.—p. 217.
*Hemolysis and Jaundice. K. Bingold.—p. 257.
*Nature of Nephrosis. V. Kollert.—p. 287.
Nycturia in Heart and Kidney Disease. O. Klein.—p. 312.
Pituitary in Relation to Metabolism. D. M. Rossiysky.—p. 334.
*Bedside Study of Hemogram. G. Ockel.—p. 338.
*Psychoneurotic Disturbances in Hyperthyroidism. R. F. Weiss.—p. 366.
Precipitation in Oversaturated Uric Acid Solutions. R. Kohler and R. Krüger.—p. 381.
Orthostatic Albuminuria. H. Uyeda.—p. 394.
*Auscultation of the Pulse. M. Reh.—p. 413.
Diagnosis of Lymphogranulomatosis. J. Weiss.—p. 444.
*Blood Volume Determination. A. Mendershausen.—p. 468.

Gas Metabolism.—Arnoldi and Ferber found practically identical changes of oxygen intake and carbon dioxid exhalation after injections of salts of calcium, sodium and potassium. The oxygen seemed to be better utilized; the carbon dioxid was lowered. They had occasion to observe an epileptic girl before the attack. The respiration was lowered about half an hour before and became progressively weaker, although the girl felt well. Respiration stopped almost entirely at the onset of the seizure.

Chronic Septicemias.—Loewenhardt uses the term *chroniosepticämie* for all chronic septicemias, like endocarditis, chorea, cholangitis, infectious nephritis, infectious neuritis, etc. Although his therapeutic measures failed, he believes that the correct diagnosis of the condition is important, not only to separate the condition from others, but also for proper treatment.

Hemolysis and Jaundice.—Bingold deals with the pathologic significance of the presence of hematin in the serum. It was found in pernicious anemia, puerperal eclampsia, gas infection and other rare conditions. It seems that the spleen and the reticulo-endothelial apparatus do not play an important part in this decomposition of hemoglobin.

Nature of Nephrosis.—Kollert examined the blood proteins in patients suffering from degenerative affections of the kidneys (nephrosis and chronic nephritis with preponderating changes in the tubuli). He found the fibrinogen increased up to nine times, the globulins fourfold, while urea, the end product of decomposition of proteins, was low. Similar conditions are found wherever the disintegration of tissues is increased (except in affections of the liver). He had found previously, with Starlinger, that albuminuria paralleled the changes in the fibrinogen content of the serum. Below a certain threshold of fibrinogen, no albumin passes in the urine. Previous affections of the kidneys lower the threshold. He considers that the disintegration of proteins is a cause of the increase in fibrinogen, and secondarily of albuminuria. Some lesion of the kidneys is also necessary. The change in the proportions of serum proteins in severe albuminurias is frequently accompanied by an increase of cholesterol in the serum. He found, with Starlinger, also a parallelism between the amount of fibrinogen and the tendency to edemas. All this is in accord with the Herzfeld-Klinger theory of the decomposition of cell proteins. This theory assumes that fibrinogen is the product first formed; this is followed by globulins, then albumins, and progressively finer dispersions. Certain acute forms of degeneration of the kidney, with necrosis, such as bismuth nephrosis, affect primarily the kidneys, and other tissues are only secondarily affected. In lipoid nephrosis, the affection of the kidneys is only a part of the whole affection of the organism. Nephritis gravidarum belongs to this group.

Bedside Study of Hemogram.—Ockel considers Schilling's modification of Arneth's method of quantitative differential blood count valuable.

Psychoneurotic Disturbances in Hyperthyroidism.—Weiss believes that psychic disturbances in patients with toxic goiters are not caused by the latter. They are only parallel symptoms of a degenerative constitution. Each can influence the other.

Auscultation of the Pulse.—Reh investigated the origin of the sounds heard distally from the cuff in Korotkow's method of determination of the blood pressure.

Blood Volume Determination.—Mendershausen found with the congo red method an average volume of blood corresponding to 7.5 per cent. of the body weight. The blood volume was below this average in anemias, and in corpulent and atrophic subjects.

Zentralblatt für Chirurgie, Leipzig

50: 1385-1416 (Sept. 8) 1923

*Dislocation of Semilunar Bone. Clairmont and Schinz.—p. 1386.
*Cerebral Anemia and Rapid Anesthesia. C. Ritter.—p. 1390.
Skull Sarcoma Cured by Operation. O. Langemak.—p. 1392.
Operative Treatment for Saddle-Nose. A. Réthi.—p. 1393.
Diagnosis of Intra-Abdominal Injury from Contusion. Grasmann.—p. 1397.
*Treatment of Patellar Fractures. B. O. Pribram.—p. 1398.
"Aspiration Catheterization" of the Bladder. F. Kroh.—p. 1401.

Conservative Treatment of Dislocation of Semilunar Bone.—Clairmont and Schinz bring out that dislocation of the semilunar bone is often a luxation of the hand around the semilunar bone which is twisted on its axis. Reduction is accomplished by extreme dorsal flexion, pressure being applied to the luxated semilunar from the palm, followed by extreme palmar flexion. Immobilization should be of short duration, and physiotherapy should be begun early. The prognosis is good.

Induced Cerebral Anemia as an Aid to Anesthesia.—Ritter recommends compression of the carotid arteries at the inner margin of the sternocleidomastoid muscles to hasten anesthesia with ether by producing cerebral anemia.

Operative Treatment of Fractures of the Patella.—Pribram recommends, unless there are pronounced contraindications, that simple fractures of the patella be sutured as soon as possible after the injury. He advocates flexion of the joint at a right angle after the operation.

Zentralblatt für Gynäkologie, Leipzig

47: 1441-1472 (Sept. 8) 1923

Simplified Artificial Pneumoperitoneum. O. Gragert.—p. 1441.
*Intracranial Serotherapy in Puerperal Tetanus. K. Fritsch.—p. 1445.
*The Corpus Luteum in Cows. A. Kaltner.—p. 1449.
*Treatment of Perforation of the Uterus. E. Schwab.—p. 1451.
Morphin as an "Antidote" in Scopolamin Poisoning. Strube.—p. 1460.

Puerperal Tetanus: Recovery Under Intracranial Serotherapy.—In Fritsch's case, tetanus antitoxin was injected subcutaneously, by lumbar puncture, and directly under the cerebral dura between the coronal and sagittal sutures. Enemas of magnesium sulphate were given, and the woman, aged 41, recovered. The tetanus had developed with a gradual onset the twelfth day after an abortion.

Studies on the Corpus Luteum in Gravid Cows.—Kaltner refers to Hofstätter's researches on rabbits and the resultant finding that there is only a loose connection between the number of impregnated ova in the uterus and the number of corpora lutea. To clear up this and other questions pertaining to the evolution and involution of the corpus luteum, Kaltner carried out a series of researches on slaughtered cows. In 295, or 98.3 per cent., of the 300 examined, the number of corpora lutea coincided with the number of fetuses in the uterus. In 1.7 per cent. there was an excessive number of corpora lutea. In every instance the corpus luteum was developed in the ovary that was connected by its fallopian tube with the gravid cornu uteri. In not a single case could migration of the ovum be proved.

Treatment of Perforation of the Uterus.—A purely conservative tre[illegible] of perf[illegible] of the uterus (rest in bed, ice-bag and [illegible] [illegible]yab to [illegible] indicated only in [illegible] [illegible] no infection is present; the possibility of bacterial infection from a decomposed placental remnant is slight; hemorrhage into the abdominal cavity is inconsiderable, and the existence of a secondary lesion (intestine, bladder, ureter or good-sized blood vessel) can be excluded with certainty. If these conditions do not obtain, the indications for active intervention are present; delay means serious danger for the patient.

Zentralblatt für innere Medizin, Leipzig

44: 625-640 (Sept. 29) 1923

*Blood Pressure Quotients. P. Engelen.—p. 625.

Blood Pressure Quotients.—Engelen reviews the significance of the proportion of the systolic to the diastolic pressure, and the different quotients (Strassburger, Moritz, Vérut).

Casopis lekaruv ceskych, Prague

62: 1021-1048 (Sept. 29) 1923

Parasites in Coloboma of Macula. J. Janku.—p. 1021. Cont'd.
*Syphilitic Pituitary Cachexia. V. Jedlicka.—p. 1027. Conc'n.
Amentia. Heveroch.—p. 1032. Cont'd.
Whey. E. Glücksmann.—p. 1038. Cont'd.

62: 1049-1076 (Oct. 6) 1923

Radium Treatment of Cancer. J. Markl.—p. 1049.

Syphilitic Pituitary Cachexia.—Jedlicka describes a case of syphilis in an aged man. The secondary eruption spread over the greater part of the body and while it was still present gummas developed, about seven months after the onset of the secondary symptoms. The patient did not react to treatment and died from cachexia, which was apparently caused by a gumma in the pituitary gland. Eight photomicrograms illustrate the findings.

Acta Chirurgica Scandinavica, Stockholm

56: 207-307 (Oct. 3) 1923

*Pathogenesis of Gallstones. T. Rovsing.—p. 207.
*Destructive Processes in the Ischium. A. Odelberg.—p. 273.
*Solitary Cyst in Kidney. K. Nicolaysen.—p. 285.
Cholecystectomy with Immediate Suture. L. Norrlin.—p. 289.
Dislocation of the Hand. K. Nicolaysen.—p. 305.

Gallstones Cause, Not Result, of Infection.—Rovsing declares that gallstones are the most frequent cause—not the result—of stagnation of bile and infection of the biliary passages. In his 30 cases of jaundice from prolonged stasis of bile, as also in Fibiger's similar series of 32, there was not a trace of gallstone production. The cause has been mistaken for the effect. He presents data to sustain his assertion that in reality the gallstones form in the liver. They are the result of precipitation of black bilihumin calcium in the liver cells, and this occurs under the influence of some transient toxemia. The soft masses of pigment are evacuated into the bile capillaries. As they lodge or are swept along, they become coated with the normal elements of the bile, and with fibrin and blood as they irritate the walls of the bile passages. So long as the concretions lie quietly in the gallbladder, they cause no disturbance. When they begin to migrate and cause disturbance, they should be removed at once. The practical conclusion from his long research and his assertions that we hitherto have been mistaking the effect for the cause of gallstone disturbances, is that when pains, fever, jaundice and dyspepsia appear, they show that the gallstones are setting up inflammation, and call for immediate removal. To wait is to allow time for irreparable damage. Waiting was the logical procedure when we assumed that infection had preceded the gallstones. But if the gallstones precede infection, as he asserts, then the logical procedure is to clear them out as soon as irritation from their presence sets up inflammation. His plate shows the different phases of the formation of the gallstone. The black nucleus in the center testifies to the origin in the liver, and the toxemia of pregnancy explains the greater prevalence of gallstones in women, although toxemia of any origin may be responsible for the precipitation in the liver. In his 530 operative cases, 80.7 per cent. were in women. Search for gallstones in 7,447 cadavers at Copenhagen revealed them in from 8 to 25 per cent. (men from 4.9 to 19 per cent.; women, 11.27 to 31 per cent.). Gallstone disturbances are exceptional in men under 30, but from 5 to 12 per cent. of all women over 20 are subject to them. The strain of childbirth may mobilize quiescent stones, in addition to the impetus to stone production by pregnancy toxemias. (The article is in German.)

Destructive Processes in Ischium.—Odelberg describes four cases of a clinical picture, between the ages of 11 and 14, traceable to an inflammatory process inside the ischium and adjacent part of the pubic bone. The pains in hip and thigh and the limping suggested hip joint disease at first, but the roentgen ray showed only the focus in the ischium, and recovery followed clearing out this focus. Inoculation of guinea-pigs was negative.

Solitary Cyst in the Kidney.—The kidney tissue encircled the large cyst in the unmarried woman of 66, and Nicolaysen was able to detach it and shell out the cyst entire. The diameter was 12 cm., and a scrap of adherent kidney tissue showed that the cyst had no special capsule.

Finska Läkaresällskapets Handlingar, Helsingfors

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*Intestinal Infantilism. W. Pipping.—p. 491.
*Pathogenesis of Torticollis. A. Krogius.—p. 515.
*Myoma Operations During Pregnancy. O. A. Boije.—p. 530.
*Microscopic Specimens. H. Castrén.—p. 542.
*Myoma Operations. J. J. Chydenius.—p. 548.
Present Status of Insulin Treatment. O. Holsti.—p. 578.

Intestinal Infantilism.—Pipping describes the clinical picture of the severe chronic insufficiency of the digestive apparatus, in children past babyhood, which Herter calls intestinal infantilism. Pipping has encountered five cases in the last five years, and one was in the children's hospital for three years. Nothing suggesting inflammation was found in the intestines at necropsy, in one typical case. The pathologic findings were dilatation of the ventricles and fatty degeneration of the liver, with anemia of all the organs, and acute pneumonia. The extremely chronic course of the intestinal symptoms; the fluctuations in the weight, independent of external causes; the development of edema of neither cardiac nor renal origin; the lack of any influence from dietetic measures—all testify to a constitutional endogenous factor. Two of the six children had severe attacks of tetany—which is rare in Finland—with other signs of an intense spasmophilic diathesis; instability of the nervous system was evident in all. One of the children had pains in the hands and feet, insomnia, edema, micturition every half hour, lack of appetite, vomiting and loss of weight and strength, long before the intestinal symptoms became pronounced, and a younger sister presented a similar clinical picture. Only one of the six belonged to the laboring classes, and all were girls, between the ages of 2 and 5. Three have died, from inanition cachexia; they were "unnourishable." Two seem to be improving slightly at present as regards the nervous symptoms, but they will probably be stunted in growth. One of them seems to have nearly recovered; the symptoms had all been milder in this case. She improved on a diet of skimmed milk and meat juice at first, but the hemoglobin percentage was 40 (Sahli) on leaving the hospital after a year's stay.

Origin of Torticollis.—Krogius presents evidence to prove that muscular torticollis must be referred to an endogenous cause—some embryonal anomaly.

Conservative Operation for Uterine Myoma During Pregnancy.—In one of Boije's four cases, the pedunculated myoma, weighing 1,450 gm., growing from the fundus, was removed through an abdominal incision, at the fifth month of a normal pregnancy. The center of the tumor was necrotic. In all the cases the pregnancy proceeded unmolested to term.

To Mark Microscopic Preparations.—Castrén draws with a cutting diamond a series of lines on the back of the object glass, dividing it into squares. Any special point to be examined with the microscope can thus be readily located by its square, as in a map.

Treatment of Uterine Myoma.—Chydenius reviews the experiences with 322 operative cases of myoma, studying retrospectively the question whether they would have been amenable to radiotherapy. Only 40 per cent. might possibly have yielded to the roentgen rays. One death from heart failure during the operation might have been avoided if radiotherapy had been applied. One woman with only 8 per cent. hemoglobin recovered after removal of the myoma.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 81, No. 25 Chicago, Illinois December 22, 1923

PROBLEMS IN THE CONTROL OF DIPHTHERIA *

JAMES A. HAYNE, M.D.
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In discussing problems in the control of diphtheria, I do not feel that I am capable of giving any definite answers to the queries that occur when one studies diphtheria, its incidence and its mortality, but I hope that this paper may bring out in its discussion some valuable information. Diphtheria, like all other infectious diseases, brings to the mind of the practitioner four questions:

1. What is the cause of the disease?
2. Is there any specific treatment?
3. Is there any way of rendering immune those persons who are exposed to it?
4. Is there any way of knowing whether a person exposed to the disease will contract it or not?

CAUSE OF DIPHTHERIA

To all of these questions we can give a definite and precise answer. To the first, the disease is caused by a bacillus first described in 1883-1884 by Klebs and Loefller. The morphology of this bacillus is well known, and the fact that when grown on suitable culture mediums it will produce a toxin. These facts have been brought out on investigation by Park, Williams and Theobald Smith. The disease has been known since the second century, and was then described by Aretaeus as the malum aegyptiacum. It was epidemic in the sixteenth and seventeenth centuries in Holland, Spain, Italy and France, as well as in England, but it was not until 1821 that Brettoneau of Tours, in a treatise on the subject before the French Academy, gave the name la diphthérite. Diphtheria for a long time was thought to be due to defective drains or sewer gas. This we now know to be not the exciting cause; but probably insanitary conditions, such as polluted water supply and improper sewerage and drainage, so lowered the health of persons exposed to the disease that diphtheria resulted when the individual came in contact with those having the diphtheria bacillus in their throats. Certain animals are susceptible to diphtheria—cats and cows. Very recently the bacillus of diphtheria has been isolated from chickens suffering with roup. Other animals, such as turkeys and birds, are known to be infected with the disease. Most domestic animals, however, appear to be immune. Children are more susceptible than adults. Membranous croup was for a long time not regarded as the same as diphtheria, but now medical men make no distinction between laryngeal diphtheria and ordinary diphtheria, except that the mortality is greater in laryngeal diphtheria. Diphtheria is found in all European and American countries. There is little diphtheria in India and Japan. Diphtheria becomes at times pandemic, apparently at periods of about twenty years.

SPECIFIC TREATMENT

The second question can also be answered affirmatively. Diphtheria antitoxin was discovered by Behring and Kitasato about 1890, but it was not until 1895 that Park and Williams succeeded in producing from culture No. 8 a far more powerful toxin than had ever been previously obtained. The culture still is used throughout the world for producing antitoxin. It came into general use about 1900, and in Chart 1, the decline in mortality in the registration area through the use of diphtheria antitoxin is clearly shown. Chart 2 shows the per capita cost of the use of diphtheria antitoxin in South Carolina. This shows that in 1915 the per capita cost was 55 mills. In 1919, the year after the war, when everything reached its high cost, the per capita cost was about 88 mills. The present cost is about 82 mills per capita. South Carolina, in 1910, was the first state to furnish diphtheria antitoxin free to its citizens, black and white.

Chart 3 shows the cost of diphtheria antitoxin per case. This varies from about $4.50 to more than $8, in 1918. It is now costing about $5 per case.

Chart 4 shows the amount of units of diphtheria antitoxin used per case. In 1915 the average amount used was 12,000 units. The amount used rose rapidly until 1920, when 32,000 units was used per case. This dropped in 1921 to 20,000 units, and in 1922 practically the same amount was used.

CONTROL OF DIPHTHERIA

As to results in South Carolina, Chart 1 shows that the average death rate in 1920 in the registration area was over 16 per thousand, whereas in South Carolina the average death rate was about 13 per thousand. This we attribute largely to the free distribution of diphtheria antitoxin.

Chart 6 compares the mortality rate in Kentucky, Massachusetts, California, Washington, Kansas and South Carolina. These states were chosen, not on account of the fact that all of them have a higher mortality than South Carolina, except Washington, but because they represent geographic areas of the United States; Kentucky, the highest, representing the East Central states; Massachusetts next, representing the New England states; Kansas, a Middle Western state; California, an extreme Western coastal state, and Washington, an extreme Western north coastal state. The mortality rates shown [illegible] ter the death rate, South Carolina the next lowest, and Massachusetts the highest. In Massachusetts probably the highest degree of intelligent effort has been concentrated on the problem of the reduction of the diphtheria mortality rate. We can only believe that the reason of the low mortality rate in South Carolina is due to our plan of universal distribution of diphtheria antitoxin.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

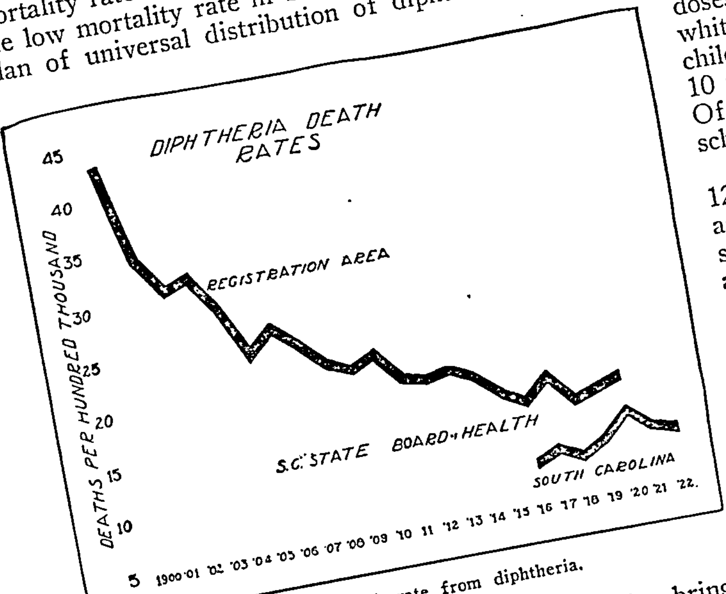

Chart 1.—Death rate from diphtheria.

Answering the third query in the affirmative brings us to the subject of the control of diphtheria. Although we have advanced greatly in our knowledge of the treatment of the disease and have succeeded in reducing the mortality tremendously, for it was five times greater in 1900 than it is at the present time, yet our morbidity rate still remains extremely high. Quarantine, placarding and isolation of the patient has done but little toward preventing the spread of the disease. The location of the carrier is an extremely difficult problem, for it has been proved that the bacillus persist almost indefinitely in the air passages in certain cases, and in a large proportion of cases it persists for several weeks after convalescence. Kelley[1] has brought out the facts so well that his conclusions are justified:

> Practically all of these secondary cases could have been avoided if at the time of institution of treatment all contacts had been immunized.
>
> The problem is of sufficient size and importance to warrant special attention.
>
> Some steps should be taken by local health authorities with physicians to emphasize the need of passive immunization.

We have, therefore, come to the conclusion that we should produce passive immunity in all house contacts by the injection of a small dose, from 500 to 1,000 units, of antitoxin. We then should stimulate later on active immunity by the use of toxin-antitoxin. As the production of active immunity in the human body by injection of toxin antitoxin takes from one to six months, we cannot let this take the place of passive immunity, which is rapidly produced by the injection of antitoxin. We agree with Bauer[2] in his conclusion that, since our gular records show a dead level with our present condition of prevention, it behooves us to make this clearly demonstrated method, viz., the Schick test and the active immunization of the susceptible, a universal practice, especially among our young children. so that they will not succumb to this loathsome malady and that our health reports will show a clean sheet in the diphtheria morbidity column. The success demonstrated by Park in the control of diphtheria in New York City by the administration of toxin-antitoxin is convincing, and in South Carolina we are endeavoring to immunize as many children as possible. In Charleston County, exclusive of the city of Charleston, 3,727 doses were given during the last fifteen months; 831 white children under 10 years of age and 286 colored children, making a total of 1,117 children under 10 years of age, received three full immunizing doses. Of these numbers, 107 (white children) were of preschool age ranging from 1 to 6.

In addition to the foregoing, thirty-nine white and 120 colored children received two immunizing doses, as they failed to receive the full set for various reasons: sickness, absence from school, refusal by parents, and in a few instances, children having moved away.

In addition to these, twenty-eight white and thirty colored children received only one dose, as they failed to complete their series for the same reasons mentioned above.

We have not yet discovered a case of diphtheria in any of the children that had these doses of toxin-antitoxin, and the two deaths from diphtheria in Charleston County reported during the last year were among children whose parents refused to give their consent for the immunizing treatment.

We offered the immunizing treatment through a circular letter addressed to the parent of each school child, and sent in care of the child. The immunizing treatments were given only to such children as had obtained the consent of their parents for the immunization.

No preliminary Schick test was attempted on any of the children, nor did we do a follow-up Schick test.

The reactions following the administration of toxin-antitoxin were, as a rule, very mild, and only a few children (mostly the older children who were near the age limit) developed a temperature around 102 or 103 the night following the administration.

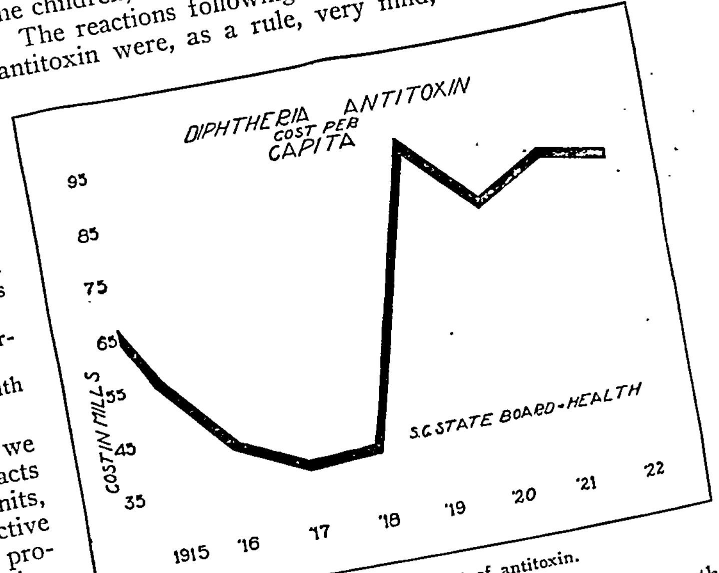

Chart 2.—Per capita cost of antitoxin.

No evidence of anaphylaxis was noted, in spite of the fact that a few of the children immunized had previously taken antidiphtheria or other antitoxins. The local reaction consisted of a reddened zone of inflammation surrounding the point of inoculation, which lasted from twelve to eighteen hours. In two cases, the inoculation was followed by a condition later diagnosed by their physicians as erysipelas, which promptly responded to treatment.

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[1] Kelley, Eugene: Preventable Infection of Diphtheria, read before the Surgeon-General's Conference, May 17, 1923.

[2] Bauer, E. L.: Pennsylvania M. J. 24:471 (April) 1921.

For the total state of South Carolina so far there have been 2,735 children inoculated, and we propose to wage an intensive campaign to have as many as possible inoculated.

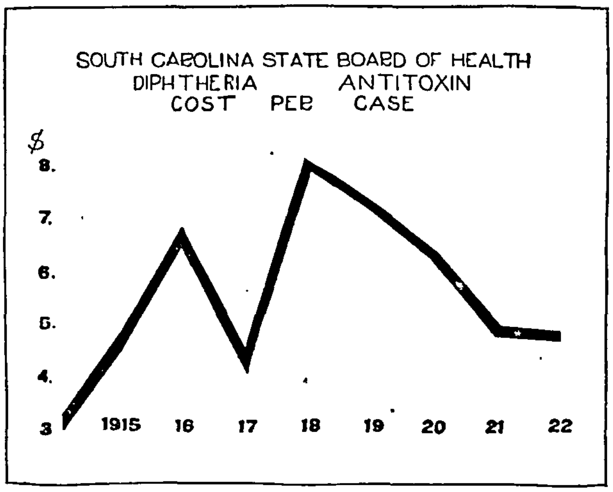

Chart 3.—Cost of antitoxin per case.

THE SCHICK TEST

In regard to the fourth query, Is there any way of knowing whether a person exposed to the disease will contract it or not? again we can answer in the affirmative, thus showing that we have a thorough scientific knowledge of the cause, the treatment, the method of rendering immune and a way of knowing whether a person exposed to the disease will contract it or not. The answer to the fourth question is the Schick test. This test is made by injecting intracutaneously on the flexor surface of the forearm 0.2 c.c. of the dilution by means of a sterile syringe with a fine steel or platinum needle. If positive, there will be a slight trace of redness, which will appear slowly on the forearm at the site of the injection of the unheated toxin in from twenty-four to thirty-six hours. The reaction reaches its height on the fourth day and disappears gradually, leaving a definitely circumscribed scaling area which may persist for weeks. At its height, the reaction shows a circumscribed area of redness and slight infiltration measuring from 1 to 2 cm. in diameter. The degree of redness varies in various individuals, but when typical always indicates susceptibility to diphtheria (Park).

By this test we are able definitely to state whether a person exposed to the disease will contract it or not.

CURVE OF INCIDENCE

Chart 6 combats the theory that has been held for many years that the curve showing the incidence of diphtheria corresponds with the opening of the schools. I am very much of the opinion of Dr. Newsholme that diphtheria becomes epidemic only in years in which the rainfall is deficient, and that the epidemics are on a larger scale when three or more years of deficient rainfall follow one another. As far as my experience of twelve years in South Carolina is concerned, I find that the curve of the incidence of diphtheria coincides with the drought that occurs usually with us in August and September, and that when there is an unusual lack of precipitation there are many more cases of diphtheria.

SYSTEM OF DISTRIBUTING ANTITOXIN

In 1910, when our state legislature first appropriated funds for the free distribution of diphtheria antitoxin, we believed that prompt diagnosis, together with free antitoxin, would effectively control our diphtheria problem. It required only a short time, however, to convince us that some system of supply must be established whereby diphtheria antitoxin would be readily available, at all times, and so distributed as to be reasonably convenient for the practicing physician.

Approximately 80 per cent. of our population is rural, we are more than 500 miles from the nearest biologic laboratory, and many of our smaller towns have limited mail train service, which facts are largely responsible for the creation of the system of distribution we now have, which, though simple, has proved efficient and entirely satisfactory.

Our contract with the biologic laboratory supplying us with diphtheria antitoxin provides that:

> The party of the second part (the manufacturer) further agrees to install and operate, at its own expense, a central distributing depot in Columbia, and to maintain an efficient system for the distribution and supply of diphtheria antitoxin, and to maintain suitable cold storage facilities for the proper storage of said product. The manufacturer further agrees that said central distributing depot shall be under the personal direction of a competent manager acceptable to the state board of health, shall stock and restock the state distributers of diphtheria antitoxin from time to time as may be necessary; compile the necessary records of antitoxin held and distributed by each state distributer, and carry in said central depot, in refrigeration, a reserve stock of diphtheria antitoxin of sufficient size to meet all epidemic emergencies.

In reality, we have a biologic department in connection with our executive offices, under our personal control.

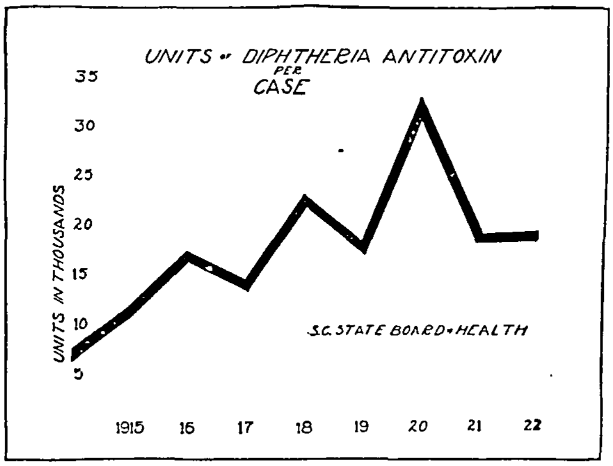

Chart 4.—Units of antitoxin per case.

Briefly stated, our distributing system consists of selected drug stores throughout all parts of the state. Every town of 500 inhabitants has one distributing station, and our cities and larger towns have more, in accordance with their population. Each station is supplied with an initial stock of diphtheria in one, five, ten and twenty thousand unit si book of requisitions printed in triplic envelops for mailing requisitions to our supply depot in Columbia, and an instruction pamphlet.

When the physician calls at a distributing station for diphtheria antitoxin, a triplicate requisition is made out, showing the number and size of the packages supplied, and the name, sex, age and color of the patient. This requisition is signed by the physician obtaining the antitoxin and certified to by the distributer. The pink copy is retained by the distributer, and the other two are sent to our supply depot. Our supply depot, on receipt of these requisitions, replaces the antitoxin distributed, makes up our records, retains the white requisition for our file, and forwards the yellow requisition to the manufacturer, which becomes a charge against the state. Thus, it will readily appear that from the records in our supply depot we can ascertain daily the stock on hand at each distributing station, waste is reduced to a minimum, exchanges are exceedingly small, the distributer's stock rarely becomes exhausted, and the physician, even though he is called to a remote spot in a rural county, is always within a short ride by automobile of diphtheria antitoxin.

Reports are compiled monthly, and each distributer is paid a commission on all diphtheria antitoxin distributed as compensation for his services. While the commissions are not large, our experience is that druggists throughout the state are constantly seeking appointment as official distributers.

There is no charge whatever for any diphtheria antitoxin supplied by the state board of health, no certificates are required, and rich and poor, white and black, are treated alike.

At our supply depot in Columbia we carry in refrigeration a reserve stock sufficient to meet any emergency that might arise, and should an epidemic develop suddenly we are always prepared to supply such antitoxin as is needed immediately.

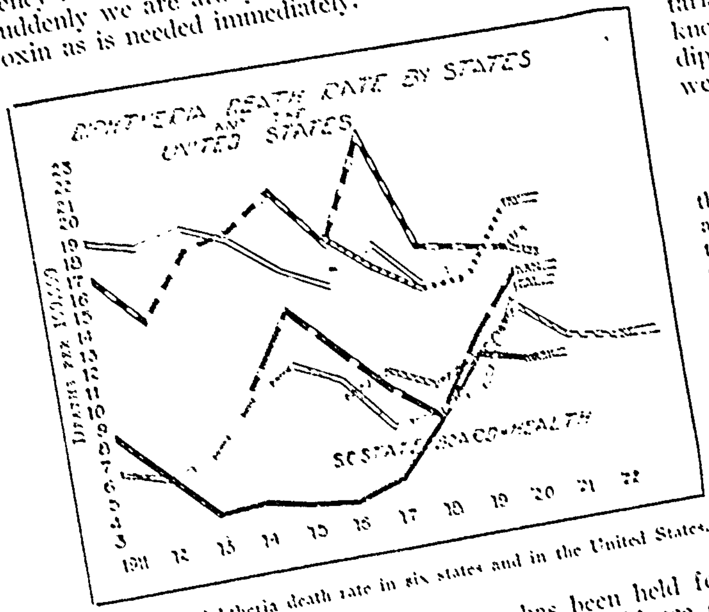

Chart 5.—Diphtheria death rate in six states and in the United States.

Chart 6 combats the theory that has been held for many years that the curve showing the incidence of diphtheria corresponds with the opening of the schools. I am of the opinion of Dr. Newsholme that diphtheria becomes epidemic only in years in which rainfall is deficient, and that the epidemics are on a larger scale when three or four years of deficient rainfall follow each other. As far as my experience in South Carolina is concerned, I find that the curve of the incidence of diphtheria coincides with the drought which occurs usually with us in August and September, and that when there is an unusual lack of precipitation there are a much greater number of cases of diphtheria.

CONCLUSIONS

1. The best method of reducing the mortality from diphtheria is by having diphtheria antitoxin ready for free distribution by the physicians, and easily obtained with no intervening red tape.

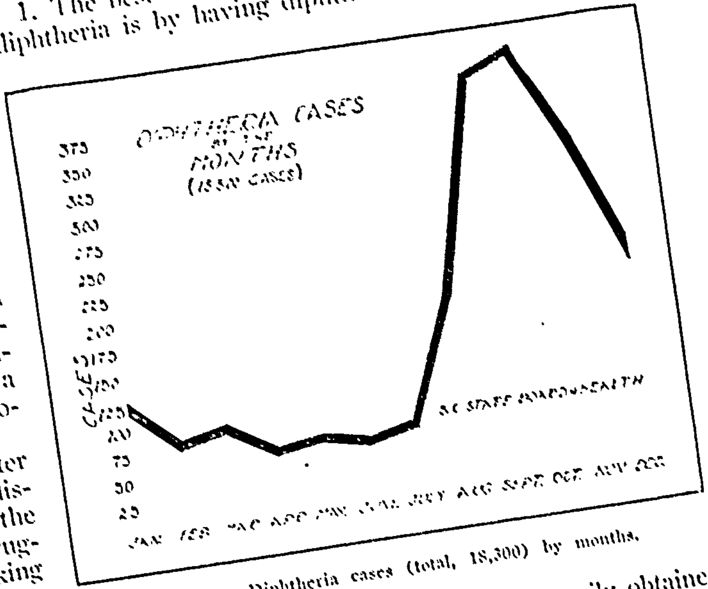

Chart 6.—Diphtheria cases (total, 18,300) by months.

2. The morbidity can best be reduced by passive immunization of contacts and active immunization of as many individuals as possible who show by the Schick test that they are susceptible to the disease.

3. The curve of the incidence of the disease being upward in the United States, it behooves us, as sanitarians, to wage an immediate campaign so that the knowledge that we have of how to prevent and cure diphtheria may be at once available to the public as well as the profession.

ABSTRACT OF DISCUSSION

Dr. F. M. Meader, Detroit: Our experience has been that the Schick test complicates the situation, so that toxin-antitoxin is not given as much as it should be. Of course, the Schick test has its laboratory use. The children who should be immunized are young; 95 per cent. of those who die of diphtheria are under 6 years of age. We can give toxin-antitoxin to our school children, but by so doing we are not going to lower the death rate. We must give the children of preschool age toxin-antitoxin; then we can expect to lower the death rate. If we ask the doctor to make a Schick test in all cases, he will not do it, and the children will not be immunized. However, if we make toxin-antitoxin available, so that the physician will give it to the young in a large way, then we shall immunize the class of people wh are increasing the death rate, or keeping it high. In regar to diphtheria carriers: The laboratory men have great diffi culty in differentiating the toxic from the nontoxic type diphtheria bacilli. For that reason, a great many childr are isolated and kept out of school and quarantined because of an organism in their throat or nose or ear which resembles the diphtheria bacillus. How to differentiate these two is the problem that has interested us during the past year. There are in Detroit approximately 150,000 school children, distributed in 230 schools. October 2, instructions were issued to readmit children who had positive diphtheria cultures, provided it could be shown that they had not been exposed to diphtheria, so far as known. The result has been as follows:

thirty-seven children with positive reports have been readmitted to thirty-five different schools. Since their admission five cases of diphtheria have occurred in their rooms. The onset of these cases appeared after the following periods subsequent to the date of admission of the carrier: six days, ten days, twenty-five days, thirty-eight days and forty-four days. In one room a case appeared six days after the carrier returned, and another case developed ten days after a carrier returned. The second case was a contact with the first case. It may be that this carrier was the source of infection in the first instance, but it would seem as if other cases should have developed if this were the source. There were 653 cases of diphtheria in all the schools during the year. The fact that thirty-seven children of the kind described returned to class in thirty-five different schools, and that no cases developed following this procedure, except possibly in one instance, would seem to indicate that carriers who have not been in contact with known cases need not be feared as a source of infection for diphtheria. So firmly do we believe that this is the case that we have permitted children who have positive cultures, who have not been associated with cases of clinical diphtheria so far as known, to come to our baby clinics, and to the present we have no records of infection spreading.

Dr. S. W. Welch, Montgomery, Ala.: Public health work is a business and should be conducted along business lines. A health department should follow the same business lines as a bank or a department store. It is particularly pleasing to notice the fine exhibition of bookkeeping and accounting the health department of South Carolina has shown us.

Dr. James A. Hayne, Columbia, S. C.: Kentucky at present heads all of the other states in the number of cases of diphtheria. This is due to the recent drought, which started about 1918. Up to that time Kentucky had been getting along fairly well; in fact, the diphtheria morbidity had been coming down until 1918.

NEPHROTRESIS FOR RECURRENT BILATERAL PYELOLITHIASIS IN HORSESHOE KIDNEY *

KERWIN KINARD, A.B., M.D.
KANSAS CITY, MO.

Janosik in 1887 [1] found, in a 3 mm. embryo of about 18 to 19 days, what he described as the pronephros or head kidney. It consisted of two rudimentary tubules, which were funnel shaped structures of peritoneum, and they extended from the mesothelial lining of the body cavity toward the primary excretory duct or the pronephric duct, into which one of the tubules opened.

The pronephros is a vestigial structure having a brief existence, and probably no functional activity. It represents the earliest development of the excretory system. The mesonephros, or wolffian body, is developed as the intermediary organ of excretion between the time of degeneration of the pronephros and the appearance of the metanephros, or permanent kidney.

The pronephros evolves the fundamental plan on which is based in a modified form the subsequent development of both the mesonephros and the metanephros.

The paraxial mesoblast extends from the neural tube in the early embryo to the point of its division into the mesial layer, or splanchnopleure, and the external layer, or somatopleure. This mesoblast is made up of the mesial part, called the somite, and adjacent to it is the lateral part or intermediate cell mass.

On either side of the midline, below the mesoblastic somite, small dorsally situated knobs appear on the nephrotome of the intermediate cell mass, from the seventh to the fourteenth segments. These are found just beneath the ectoblast, but independent of it. These knobs lengthen and grow caudad and laterad as short rods, and are the anlages of the primitive excretory duct, known now as the pronephric duct, and the pronephric tubules. These rods soon fuse, forming a long tube, which becomes hollowed a little later to form the duct. The tubules also acquire a lumen, and about the third week they lie embedded in the mesoblast of the intermediate cell mass.

This duct grows caudally as a blind end, and about the fourth week, as a mesonephric continuation of the pronephric duct, approximates the dilated terminal portion of the hind-gut with which it fuses and finally empties into the cloaca.

The inner ends of the pronephric tubules expand and become ciliated to form the nephrostomata, through which they open into the coelom, or body cavity of the embryo. Twisted knots of arterioles from the abdominal aorta grow into these expanded ends and form the primitive glomeruli. Each of these tubules with its glomerulus, from the seventh to the fourteenth, represents a body segment.

En résumé, the pronephros or head-kidney is made up of the pronephric portion of the primitive excretory duct with its tubules, and their glomeruli, which project freely into the body cavity. It degenerates early; but before it has degenerated, the mesonephros, or intermediary excretory organ, has appeared, whose cephalic end is in proximity to the caudal end of the pronephros, and slightly in front of it.

The mesonephros has been developing while the pronephros was degenerating, and now has its primitive excretory duct, called the mesonephric, or wolffian, duct manifest, which is a morphologic persistence of, and a direct continuation caudad of the pronephric duct *en route* to the cloaca.

The mesonephric tubules have their anlage appear in a similar manner to those described for the pronephros. The embryo has grown, and the growth of the mesonephric duct and tubules is directed tailward. The anlage of the tubules of the mesonephros arise from the tenth to the twenty-eighth body segments.[2] The most cephalic of these tubules arise just caudal to the pronephros, and overlap the latter. Caudal to the tenth pair of body segments, the mesonephric anlagen arise from the nephrogenic cords, and the primary excretory ducts lie lateral to these and are of unsegmented mesoderm.[2]

As the mesonephros develops, the embryo grows. As these processes are going on, the tubules of the mesonephros develop in such a way that the organ probably remains comparatively the same size during the most active part of its functional life. As the cephalic tubules degenerate and become atrophic, the caudal tubules are constantly forming. The mesonephric tubules open into the primary excretory duct at their outer ends, while the inner ends become expanded and have glomeruli develop in them not unlike those described in the case of the pronephros; but these glomeruli are less primitive, and do not communicate freely with the coelom.

The mesonephros extends from the sixth cervical to about the third lumbar segment as the caudal limit, in embryos of 7 mm., or between the fourth or fifth weeks of intra-uterine life. About eighty of these pairs of mesonephric tubules develop in all, of which, owing to degeneration, only twenty-one pairs remain present in embryos of 21 mm. in length, or about the seventh week of intra-uterine life.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

[1] Janosik, cited by Marshall: Vertebrate Embryology, 1893.

[2] Prentiss and Arey: A Laboratory Manual and Text B Embryology, Ed. 3, 1920.

The glomeruli of the mesonephric tubules form a single median column, while the tubules are dorsal and the duct is lateral in position. The primary excretory duct is solid in embryos of 7 mm. in length.[2]

When fully formed, the mesonephros extends from behind the lung anlage to the lower end of the gut tube, along the posterior wall of the body cavity for its whole length. It is during the second month that it attains its perfection, after which it rapidly degenerates, and persists in the male as the vas deferens and its contiguous structures; while in the female it persists in the broad ligament as Gartner's duct and the tubules of the epoophoron and paroophoron.

As the tubules of the mesonephros expand in 7 mm. embryos, there is insufficient space in the dorsal body for this expansion; so they cause a bulging out into the ventral coelom, which forms a ridge on the dorsal mesentery from the sixth cervical to the third lumbar segments. This ridge forms the urogenital ridge and develops the future sex gland.

Prior to the atrophy of the mesonephros, the renal blastema has been active, the anlages of the metanephroi have appeared and the rudimentary primitive kidney, owing to a fusion of these two embryologic structures, has been under process of construction.

Evagination of the primary excretory duct to form a small bud occurs near the band where it joins the cloaca. This bud grows dorsad, and constitutes the anlage of the metanephros. These renal buds grow posteriorly in such a way that the blind end of each can dilate, while the stalk to which it is attached may elongate. While this growth occurs, the elongated stalk becomes the ureter, and the dilated portion becomes the future kidney pelvis. The kidney pelvis of each now forms a cephalic and a caudal pole, and each of these divide many times to form the calices, and eventually the canaliculi, and their completed systems of canals; some of these become papillary ducts, while others become the collecting tubules.

Meanwhile, these systems of collecting tubules have reached, grown into and been capped by the renal mesenchyme, which up to this time has been a mass of practically undifferentiated mesoblast, and has been termed the renal blastema. It very soon differentiates and forms the cortex, columns of Bertin, supportive stroma, and the capsule of the kidneys. This occurs about the fifth or sixth week, while the kidney is still in the pelvis of the embryo, but slowly migrating upward. As the metanephros develops, it grows cranialward, and carries the renal blastema with it while differentiating into kidney cortex, and soon we have the true rudimentary kidney.

At about six weeks in an embryo may be seen small spherical masses [2] developing in the angles formed by the meeting of the new collecting tubules with the renal blastema, so that each angle has one spherical mass of blastematous tissue on it. This mass soon elongates, becomes tubular, and unites with its collecting tubule to form a renal corpuscle. From each of these there is developed a uriniferous tubule, which, sooner or later, develops a proximal portion, a loop of Henle, descending and ascending limbs, a connection portion which lies close to the renal corpuscle, and a distal convoluted portion continuous with the collecting tubule.

The capsule of Bowman is now manifest, and a shallow cavity is soon formed, into which arteries penetrate to form a glomerulus. As the vessels penetrate, the depth of the cavity increases until finally the walls of the capsule grow about and enclose the glomerulus except at the point at which the arteries enter and the veins leave it. Renal capsules are first fully formed in embryos of about 7 or 8 weeks, and this kidney development continues until after birth, for a period of ten days, more or less.[2]

In summary we may say that an embryo during its fifth week of intra-uterine life has its metanephroi, or permanent kidneys, in a rudimentary form. They lie in the pelvic cavity of the embryo opposite the second sacral provertebra, just below the bifurcation of the aorta in a space that is inverted V-shaped, and bounded on either side by the common iliac artery. Pressed into this space, the metanephric buds appear anterior, growing toward the renal blastema, which lies posterior, and which they soon penetrate.

This growth continues until the seventh or eighth weeks, during which time the renal buds have enlarged, and from their blind ends the pelves, calices and collecting tubules have been developed; while the renal blastema into which they have grown has become molded over the collecting tubules to form the rudimentary kidney, whose migratory ascent out of the pelvis has begun. At this time, the kidney and pelvis lie in the frontal plane, and move upward over the common iliac vessels, until the normal resting place in the posterolateral body wall opposite the second lumbar vertebra has been reached. Gray gives the normal adult limit of the kidney as the twelfth thoracic vertebra for the upper pole and the third lumbar vertebra for the lower pole, with the right one a little lower than the left. This has occurred from about the ninth week onward.

The kidney soon places the ureter posterior as it goes through the process of rotation, or a turning on its longitudinal axis toward the median line until it settles and becomes definitely anchored in its retroperitoneal pouch in the posterolateral body wall. Here it develops its permanent vascularization from the aorta.

With this understanding of the development of the normal kidney, we may now proceed with a discussion of the horseshoe kidney, which is the type of fused kidney to which I shall try to limit my remarks.

THE HORSESHOE KIDNEY

Beel,[3] quoting Kupffer, has decided that the renal buds, as they develop from the primary excretory duct, approach abnormally near the median line, touch and fuse, and form a horseshoe kidney.

Birmingham,[4] in 1890, discussing his case of sigmoid kidney, said that the facts pointed to the common belief at that time, relative to fused kidney, namely, that each kidney developed separately to a certain point, when, for some unknown reason, fusion occurred, and a permanent union of the lobules resulted.

Broman, quoted by Brunner,[5] says that the early normal pelvic position of the caudal poles is one in which they nearly touch each other, and have no intervening organ. Potentially, the possibility of fusion seems ever present, because the caudal poles are nearer together than the cranial poles. These facts all seem logical in explanation of the early fusion of the horseshoe kidney.

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[3] Beel, T. A. L.: Contribution to Renal Anomalies, Ztschr. f. Fleisch- u. Milch-Hyg. **13**: 118-120, 1903.

[4] Birmingham, A.: Simple Unilateral (Sigmoid) Kidney, Tr. Roy. Acad. M. Ireland **8**: 477-488, 1890; Dublin J. M. Sc. **90**: 47-50, 1890.

[5] Brunner, A.: Contributions to Renal Pathology: A Duplicate Kidney and a Case of Hydronephrosis in a Horseshoe Kidney, Beitr. z. klin. Chir. **122**: 136-152, 1921.

Papin and Iglésias[6] say that when fusion occurs to the upper poles, the kidney is lower than those fused by the lower poles. They say that horseshoe kidney is a very early malformation, which precedes the appearance of the permanent vessels in the kidney.

Winternitz[7] says that mobility of the kidneys at their upper poles is limited, because of the close connection of the caudal part of the mesonephros with the cranial tubules of the metanephros. The development embryologically substantiates this, because at the eighth week the mesonephros is at the height of its growth.

Bryan[8] says fusion occurs at the lower poles about the seventh or eighth week of intra-uterine life of the embryo, and more rarely does union of the upper lobes occur. But he says that in his case union occurred after the seventh week, when the kidney had arisen over the promontory of the sacrum. He points out that union does not always occur within the confines of the aortic bifurcation.

Bugbee and Losee[9] say that at 7 mm. the rudimentary kidneys lie opposite the second sacral vertebra in the same relative position on the level; or one may be ventral to the other; or one may be placed above the other. They say that the connecting bridge shows more complete kidney structure, the earlier the fusion occurred, and that later fusions show only the capsules to have fused, or fibrous remains of atrophic, sclerotic parenchyma may be found.[10]

Dorland,[11] quoting Pohlman, says that the dystopic bud appears later, or develops more slowly than the normal kidney bud; and as a consequence, the normal kidney ascends and rotates properly, while the dystopic kidney does not.

Muthmann,[12] speaking of his case of fused kidney, says that fusion could not have occurred between the fifth and eighth weeks, since the hilum lay in the neutral position and the ureter and pelvis lay before the hilum.

Winternitz[7] suggests that Hill has shown that vascularization of the kidney depends entirely on its position, and that a renal bud, which has been slow in ascent, might receive its artery from a lower point on the aorta than normal, and by this means be held in the lower position. Eventually the dystopic kidney is dragged across the vertebral column by the normal kidney, he thinks.

Verocay[13] believes that one kidney is usually larger in horseshoe fusion because the enlargement of the kidney rests essentially on an increased new growth, or hyperplasia, of all the tissues composing the kidney; this Beumer pointed out, after an exhaustive study of unilateral congenital kidneys. He further cites Rosenstein and Perl, who, on the other hand, concluded, after animal experimentation, that hypertrophy is the cause of enlargement and is predominatingly due to an increase in weight; and that this is accomplished by an additional increase in the contents of blood, lymph and primary kidney constituents, as well as an abnormal thickness of the individual elements caused by increase in the amount of nourishment. They attribute only a slight rôle to the hyperplasia of epithelial and interstitial tissue.

Most writers believe with Budde[14] and others that fusion in a horseshoe kidney, with complete kidney tissue in the connecting bridge, could not have occurred later than at the beginning of the rotation of the renal pelvis.

We know that a horseshoe kidney presents certain well known features, and that among the most important are these: 1. It is usually situated at a lower level than the normal kidney. 2. Its arteries usually arise farther caudad than is seen in the normal kidney. 3. Its hilum is more neutral. 4. Its migratory ascent is incomplete, and rotation is thereby probably affected. 5. Absence of the ventral lip to the hilum is noted in fused kidney. 6. The ureter passes in front of the dystopic kidney. Especially true is this in lower polar fusion of horseshoe kidneys.

We further know that the connecting bridge of a horseshoe kidney may be of fibrous tissue, of kidney cortex or of entire kidney structure. We know also that it may exist as an accessory organ with its own blood supply.[15]

It is most necessary to consider chronological variation of the outgrowths from the wolffian duct or primary excretory duct to form the renal buds, as having to do with the time-limited schedule of growth of these organs.

If the horseshoe kidney becomes fixed low down in the pelvis, it is fair to assume that fusion must have occurred some time prior to its migration upward to the point of rotation. And if this position does determine the vascularization of a kidney, we can see how, once it has become established, it is very apt to be held there, after penetration of the kidney by blood vessels has occurred.

Felix noted from an embryo of about 8 weeks (30 mm.), which had a fused kidney, that the inferior mesenteric artery and its mesentery caught and prevented its ascent.

Budde noted in his case a bridge that had arisen between the metanephroi and that had been caught by the inferior mesenteric vessels, with failure to ascend because of this.

Relative to vascularization, McDonald[16] says that the mesonephros receives segmental branches from the aorta, but that the permanent kidney receives its temporary blood supply from the median sacral, but after its ascent it receives its permanent blood supply from the abdominal aorta.

Jeidell, working with pig embryos of 14 mm., says that the "inferior mesenteric artery gives off what may be considered the main temporary artery to the growing kidney." Wilhelmj,[17] quoting Jeidell, gives us this information, and, in addition, says that in his case the main artery to the kidney arose from the aorta, in common with the inferior mesenteric, and because of this we can determine roughly the time at which the displacement occurred, because the renal veins at the same stage are tributaries to the posterior cardinal veins. If we presume that the kidney was prevented from reaching its proper height of ascent, then we may infer that instead of the left renal vein emptying into the posterior cardinal vein at the point of anastomosis, it must have reached the posterior cardinal *lower* than that point. His case showed that the left spermatic vein was also low and entered the left posterior cardinal below the renal vein, and that when the kidney was displaced, this long vessel was carried with it across the aorta and under the inferior mesenteric artery, which might explain similar observations made by other writers.

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[6] Papin, E., and Iglésias, A. P.: On a Case of Calculous Horseshoe Kidney, Ann. d. mal. d. org. gén.-urin. **1**: 424-441, 1909.

[7] Winternitz, M. C.: A Case of Sigmoid Kidney, Johns Hopkins Hosp. Bull. **19**: 229, 1908.

[8] Bryan, R. C.: Report of a Case of Horseshoe Kidney, Virginia M. Month. **48**: 75-80 (May) 1921.

[9] Bugbee, H. G., and Losee, J. R.: The Clinical Significance of Congenital Anomalies of the Kidney and Ureter, with Notes on the Embryology and Foetal Development of the Kidney, Surg., Gynec. & Obst. **28**: 97-116 (Feb.) 1919.

[10] Carlier, V., and Girard, M.: Anatomy and Surgery of the Horseshoe Kidney, Echo méd. du nord **16**: 429, 442, 1912.

[11] Dorland, W. A. N.: A Consideration of Renal Anomalies: With the Presentation of Two Unique Cases, Surg., Gynec. & Obst. **13**: 303-319, 1911.

[12] Muthmann, E.: Horseshoe Kidneys, Anatomische Hefte, Wiesbaden **32**: 579-587, 1906, 1907.

[13] Verocay: Left Renal Impar Combined with Anomalies of the Genital Organs, Abdominal Arteries and the Skeleton, Prag. med. Wchnschr. **32**: 637-641, 1907.

[14] Budde, Werner: The Genesis of the Horseshoe Kidney and Related Malformations, Wiesbaden, J. F. Bergmann, 1913.

[15] Alezais: The Horseshoe Kidney and the Anomalies of Renal Arteries, Compt. rend. Soc. de biol. **60**: 889-891, 1906.

[16] McDonald, A. L.: The Practical Importance of Common Renal Anomalies, Am. J. Dermat. & Gen [illegible] Dis. **15**: 417-423, [illegible]911.

[17] Wilhelmj, C. [illegible] se [illegible] sed Disp [illegible] he Left Kidney with Fusion [illegible] -177, 1

There seems to be little doubt that mechanical factors play an important part in the formation of horseshoe kidney. There is no reason why we should not assume that growth occurs in the embryo on a time schedule, and that interference with this time schedule is apt to produce an anomaly or malformation. If the schedule is properly adhered to, we may assume that the organs become normal in size and position.

Strube, as pointed out by Heiner,[18] thinks the vertebrae, sacrum, the iliac fossa, and, in addition, the contents of the abdominal and pelvic space influence the flattening. Heiner thinks that all kidneys, whether fused or not, show regularly the discoid form, with the hilum in the anterior position. He, too, believes that these modifications are influenced by neighboring organs.

Budde says the stomach was low in the cases of fused kidney that he investigated. The lowest the stomach was noted was down to the middle of the fourth lumbar vertebra, at which time the heart lay opposite the twelfth thoracic vertebra. The embryo liver, correspondingly, was enormous, and reached on both sides to the fifth lumbar vertebra, and by intervening glands like the suprarenal glands, pressure could have been exerted on the growing kidneys. So these factors may exert some influence in a mechanical way deleterious to the normal growth and ascent of the kidney.

Wilhelmj says, relative to retarded growth, and alteration of the time schedule, that at least three factors may play a part in the displacement of a kidney: (1) rotation of the gut, when it assumes its normal position; (2) the great increase in size of the caudal end of the wolffian body, which would not affect a normal kidney because the latter would already have migrated toward the cranial end of this organ, which is undergoing degeneration and atrophy simultaneously, and (3) the descent of the sex gland.

In his case, displacement occurred, he believes, before the rotation of the intestine, because of the relation of the left ureter to the pelvic colon, and the relation of the left renal vein and artery to the inferior mesenteric artery as previously explained.

CONCLUSIONS

After studying carefully the literature on horseshoe kidneys, we are confronted with several outstanding conclusions, which seem fairly well established:

1. The inverted V-shaped crotch, resulting from the bifurcation of the abdominal aorta into the common iliac vessels, shows a tendency to converge the two lower kidney poles during early development and migration out of the pelvis of the embryo.
2. Fusion occurs early in a typical horseshoe kidney, probably soon after the renal buds penetrate the blastema to form the rudimentary kidneys.
3. The nearer the time of fusion occurs to the early formation of the rudimentary kidneys, the more likely it is that the connecting bridge will be made up of normal kidney substance; while late fusion probably always shows fusion of a fibrous character.
4. The time element is an important factor because growth of tissue probably continues on a time schedule and if an organ does not carry on according to schedule, it will be mechanically interfered with by its adjoining organs and tissues, with resultant interference with its normal development.
5. The complete ascent of a kidney is sometimes interfered with by the inferior mesenteric and umbilical vessels. The kidney may become caught in them, and vascularization may soon occur under such circumstances and permanently hold the kidney in situ.
6. The upper kidney growing ahead of the dystopic kidney may, in the course of its growth, drag the latter across the vertebral column, thus allowing it to be held there until after permanent vascularization.
7. Fusion probably occurs before rotation of the kidney pelvis has been completed.
8. The permanent vascularization comes from the abdominal aorta, while probably the median sacral gives the temporary blood supply to the early rudimentary kidney.
9. When one kidney of a horseshoe fusion becomes abnormally large, it is probably the result of hypertrophy and hyperplasia.

In our case, as presented in this paper, we believe the following steps probably occurred which resulted in the formation of a horseshoe kidney instead of two normal and separate kidneys. It showed a fusion of both lower poles by a bridge connecting the two which was made of normal kidney structure. This gave evidence that the fusion must have occurred quite early in the embryologic development of the metanephroi. We feel that the sequence of events which led to the development of this anomaly were:

1. Earlier formation of the left metanephric bud than occurred to its fellow of the opposite side.
2. More rapid development of the left metanephros than to the right, therefore:
3. Earlier migratory ascent of the left rudimentary kidney out of the pelvis of the embryo, by its being moved upward over the left iliac artery, at which time its lower pole was quite close to the lower pole of the less rapidly developing right rudimentary kidney.
4. Beginning of rotation of the left kidney at this time and placement of its ureter posterior. Next there occurred fusion between the lower poles of both kidneys until completed. Rotation had not been completed on the right kidney at this time, because its ureter was anterior and remains so today.
5. Completion of rotation of the left kidney and pulling of this organ into its permanent anchorage or pouch, in the left posterolateral body wall with coincident dragging of the unrotated right kidney up over the promontory of the sacrum to the left of the median line, where it may have been caught and held by some mesentery or blood vessels. It was probably detained there by the future

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[18] Heiner, G.: Congenital Dystopia of the Kidneys and Congenital Renal Deficiencies of the Afferent Vas Deferens, Folia urolog. 3:186-226, 1908-1909.

6. Compensatory hypertrophy of the left kidney which forced its lower part to extend to the place where the right kidney, now a part of the horseshoe kidney, had been dragged and was held in situ.

7. Permanent vascularization was begun early and helped hold this fused organ in position; it probably came from lower down on the abdominal aorta than is normally seen, and it apparently was developed from the external iliac vessels.

While this sequence seems logical, further observation by other writers on this subject may teach us a great deal that at this time is not definitely known concerning the formation of fused kidneys.

REPORT OF CASE

History.—R. F. G., a man, white, aged 33, an engineer, married, complained of fever and chills, headache, gaseous distention of the abdomen, and radiating pains into the right testis from the left lumbar region, where a sensation of fulness existed.

The patient was fairly well until June, 1919, when he noticed an intense pain at the upper end of the inguinal canal, which radiated downward, as it became more severe, into the right testis. The case was diagnosed as incomplete hernia, and the patient was given a purgative and improved. Then he was given a truss, followed by some relief after three or four weeks of its use. About this time, he noticed that the urine was turbid and had a disagreeable odor. In a short time he was conscious of a general depression and weakness, which was cumulative as the months dragged along.

In February, 1920, the patient had another attack, similar to the previous one, and, thereafter, the attacks became more frequent, and each attack lasted longer than the one before. About this time, the abdominal soreness that followed each attack lasted from one to four days, during which time the abdomen was distended with gas, and the patient was extremely uncomfortable until the gas finally was passed. From November, 1920, to about April, 1921, the attacks came about every fortnight, with passage of small calculi; finally the urine showed pus and blood in quantity, and the attacks were associated with much pain in the left lumbar region, a fever up to 103.6, at times and chills. The pain radiated into either testis, but never into the two at one time. The case at this time was diagnosed as probable lateral nephrolithiasis.

The patient was operated on, April 10, 1921, at a large Western clinic, by another surgeon. A left loin incision for stones in the kidney was made, and at this time a horseshoe kidney was found, which had stones in both kidney pelves. These stones were removed by bilateral pyelolithotomy, and the pelves were closed. The stones removed from the left kidney weighed 24.35 gm. and 6.57 gm., respectively, and one calculus weighing 6.22 gm. was removed from the right kidney. The oblique incision was continued toward the left anterior superior spine in order to examine further the horseshoe kidney. The left kidney was found to be about 6 inches long, and joined by its lower pole to the lower pole of the right kidney. The right kidney was about 3 inches long, and its pelvis and ureter were lying to the left of the median line. Each kidney pelvis was dilated, but the kidney proper was not damaged, judging by gross appearance. The wound was closed with interrupted catgut in a manner to permit posterior drainage.

Following operation, the patient had a stormy convalescence, with high fever and chills. He said that he developed four attacks of streptococcic infection that involved the tonsils, sinuses of the face, pleura, and, finally, the right testis. He said that he was told he had phlebitis of the left leg following the removal of the drainage tubes. The tonsils finally were removed, after which he did not seem to gain much strength; he was pretty well worn out and still continued to have chills and fever. After he returned to Kansas City, his condition remained the same, and the chills and fever became continuous.

Finally, in October, his condition became grave. At this time, the daily temperature of the patient varied from 99 to 103.3 and he had chills and fever. He was removed to the Research Hospital, Kansas City, Mo., under the care of his physician, where I saw the patient in consultation, and we decided on rest, forced fluids, urinary alkalization, cystoscopic examination and some subsequent operation was believed necessary.

The patient had had the usual childhood diseases. He was healthy until 1907, when he had a cystostomy performed for stones in the bladder. Recovery was complete, except for pleurisy following the operation. The family history revealed nothing of importance. The patient stated that he had had no venereal infection. His wife had had one child in 1919, which died after one year's illness of some kidney infection following an influenzal attack. The patient had never drunk alcoholic liquors, was a moderate smoker and did not indulge in excesses.

Physical Examination.—The skin was a pasty white, and hot and dry in the late afternoon. The tongue and lips were dry. The pupils reacted to light and in accommodation. There was no cranial nerve involvement. The ears were normal. The nasal septum was crooked. There were no tonsils. The hair and teeth were normal. The thyroid gland was normal. The mucous membranes were pale. There was vesicular, bronchial breathing. There were no râles. The precordium was normal in outline. The rate of the heart was increased, and a systolic murmur was heard at the base, which disappeared when the patient sat up. The point of maximum intensity was felt in the fifth interspace, 1 inch inside the midclavicular line. The spleen and liver were negative on palpation. The right kidney was not palpable; the left kidney was not definite; it did not move with inspiration. The abdomen was distended; there was tenderness in the left loin near the costovertebral angle, and soreness on that side did not permit careful examination. Tenderness extended down into the midline near the region of the pubes. A mass that was vague and tender was noted in the left flank, and to the left of the umbilicus it was indefinite. The reflexes were slightly increased. The extremities were normal.

Laboratory Examination.—On admission, the blood showed: coagulation time, one and one-half minutes; hemoglobin, 90 per cent.; erythrocytes, 4,864,000, and leukocytes, 9,600 (subsequent counts were 12,500, 14,000, 21,000, etc.). The differential count showed polymorphonuclears, 65 per cent. (subsequent counts were 76, 79 and 77 per cent.); lymphocytes, 32 per cent.; large mononuclears, 2 per cent., and transitionals, 3 per cent. The blood sugar was 0.09 mg. per hundred cubic centimeters. The Wassermann reaction was negative. The urine was cloudy, straw colored and acid. The specific gravity was 1.026. Albumin and urates were present. A few erythrocytes, pus cells and a few acid fast bacteria and epithelium were found. Otherwise, the urine was negative. There were many motile bacteria. A culture of the urine yielded staphylococcus and *B. coli*, from which a vaccine was made. The total solids were 11 mg. per hundred cubic centimeters; urea nitrogen, 9 mg. per hundred cubic centimeters. The total urea was 3 mg. per hundred cubic centimeters.

Roentgenologic Examination.—After a barium enema had been given, the cecum was evenly distended and well filled. The descending colon and transverse colon were of normal caliber. The flexures were normal. There was no appendical shadow.

After a barium meal, the stomach appeared normal, and emptied completely in five hours. The duodenum and jejunum were also normal. The ileum was normal, and showed no diverticula. The ileocecal valve was patent. Occasional spasticity was noted in the transverse colon.

Shadows showed in the pelves and ureters of the kidneys. There was also a complete obliteration of shadows after an injection of sodium bromid into both pelves, with a reappearance of shadows after release of the pent-up bromid and withdrawal of the ureteral catheters. The roentgen-ray catheter made a complete turn in the left pelvis and ureter.

Cystoscopic Examination.—November 24, Dr. R. Lee Hoffman of Kansas City, Mo., examined the patient with a cystoscope. The patient complained of pain in the left lum region and in the right testis. Examina palp. ie internal genitalia and renal are. tiv cystitis was disclosed, with pus b

There were thick pus casts about the ureteral orifice on the right side. The right ureteral orifice stood open, and was thickened and seemed to spurt urine. The left ureteral orifice stood open and had considerable edema present. The urine from this side spurted clear.

Right and left No. 5 ureteral catheters were easily introduced into the renal pelves, and clear urine was obtained from the left side, but none from the right. Lavage from the right side brought urine loaded with pus.

Examination of the urine showed albumin, many pus cells, epithelial cells and no casts from the right kidney. Urine from the left kidney showed some albumin, a few pus cells and no casts.

One c.c. of phenolsulphonephthalein was injected intravenously. The appearance time was: right, ten minutes, 2 per cent.; left, four and one-half minutes, 15 per cent. Roentgenograms taken after the injection of 40 c.c. of sodium bromid (15 per cent. solution) into the left pelvis, and 12 c.c. of thorium solution into the right pelvis showed nine shadows in the left renal region, with no shadows in the right area but a shadow in the bladder region after shadowgraphic fluids had been drawn away ten minutes later.

A roentgenogram showed that the left ureteral catheter made a complete loop on itself in the upper third. Both catheters were allowed to remain in the ureters for drainage, and were removed during the night by the patient.

The patient continued to have chills; so retention of the catheter on the left side was suggested. October 28, a catheter was passed into left renal pelvis for five days. The temperature improved. November 1, an intramuscular phenolsulphonephthalein test showed:

	1st Hour Per Cent.	1½ Hours Per Cent.	2 Hours Per Cent.	½ Hour Intervals Per Cent.
Left side...............	15	12	10	37
Right side..............	16	12	10	38

The case was diagnosed as bilateral, recurrent pyelolithiasis, with a horseshoe kidney.

Operation.—(Drs. Kinard and Hoffman; anesthetist, Dr. Clark).—An operation was performed, November 2. The patient was given a hypodermic injection of morphin, 1/6 grain, and scopolamin, 1/200 grain, one hour before operation. The anesthesia used was nitrous oxid and oxygen. The patient was placed in position for a left nephrectomy. The sphygmomanometer showed blood pressure systolic, 130; diastolic, 80; the pulse was 114.

An incision was begun at the twelfth costovertebral angle, and carried around the old scar through the skin and fascia, obliquely around the loin toward the left anterior superior spine. The old scar was excised, and the incision continued through the old scar and muscle tissue to the perirenal fat. Many adhesions were encountered, and bleeding was free. The incision was enlarged anteriorly, and the left kidney was isolated and the peritoneum pushed away from it. Hot packs wrung out in saline solution were used to maintain warmth as the peritoneum was pushed toward the median line of the body.

Some small vessels had developed in the fibrous tissue and attached themselves to the kidney capsule. These were doubly ligated and cut. The upper pole was finally freed, and extended opposite or higher than the upper part of the first lumbar vertebra. The kidney was large, about 6 inches in length, and the pelvis was dilated somewhat, though it was not so noticeable at operation as the roentgenogram showed following injection with opaque fluid.

The lower pole of the kidney was examined, and an oblique line of cleavage, which was smooth, was felt between the lower pole of the right and left kidneys where they joined each other, and the connecting bridge was apparently of complete renal substance. It was difficult to realize from palpation that the two kidneys had not been intended to unite in this way; the fusion was perfect. The left ureter was in its normal position, and was placed posterior. On palpation, the right kidney was found lying just above the promontory of the sacrum, and its size was about half the size of the left kidney. The hilum pointed craniad and forward. The kidney had its concavity upward. The ureter crossed over the front of the right kidney. The left renal vessels came from low down on the aorta, probably the left iliac artery. There were no distinct stones, but hardened masses were palpable in the pelvis of each kidney.

At this time, the anesthetist reported that the patient's condition was not good, and the blood pressure had dropped rather suddenly. The examinations were stopped, and the left kidney was incised down the median line, for about 3 inches. No cultures were taken. The ureter held no visible pus, and no stones were encountered; but a thick, gritty inspissated material was encountered, which was washed out as quickly as possible by saline sponges. A ⅝-inch tube was then inserted through the kidney substance into the pelvis of the left kidney. The kidney was closed around the tube with No. 1 chromicized catgut, with deep mattress sutures, while superficial interrupted sutures were placed through the kidney substance between the mattress sutures. The gauze packs were removed. Small drainage tubes were inserted, and held in place by interrupted chromicized No. 2 catgut sutures.

The patient at this time had a systolic blood pressure of 76, and a diastolic pressure of 54; the pulse was about 136. He was sent to his room in poor condition.

Course.—The patient, on return to his room, was given 1,200 c.c. of physiologic sodium chlorid solution by hypodermoclysis. Fifteen drops of epinephrin chlorid solution (1:1,000) was given intravenously. Electric pads were applied, the foot of the bed was elevated, and other measures of relief were taken until reaction occurred several hours later. One-fourth grain of morphin and 1/100 grain of atropin was given until reaction had fully set in. Protoclysis was used continuously of a solution made of glucose, sodium bicarbonate and tap water, which the patient retained well. One hour later the pulse dropped to 120 and the temperature rose to 100 F., while the systolic blood pressure was 85, and the diastolic pressure was 65.

At 4:30 p. m., on the day of the operation, the blood pressure had risen to 150 systolic, and 110 diastolic; the pulse was 112, and the temperature was 101.5 F. The patient was fully awake and felt well, and copious drainage from the tube in the pelvis into dressings had already begun; the discharge was bloody at first, and later, thick, grumose, malodorous urine drained away each time the dressing was changed. One week later, the temperature was lower; chills had been absent since the operation. The bowels had moved well, and drainage was excellent. The perirenal drains were removed between the eighth and tenth days, while the main tube was left for two weeks, when it was replaced by a soft rubber catheter No. 14. No lavage was ever attempted through this tube. The wound had healed by this time except at the nephrotresis site.

The patient did very well, but had one distressing symptom throughout this period, and this was the presence of gas pains. He had several enemas daily which, at first, relieved the condition, but only temporarily. About this time, his previous three daily enemas were discontinued, pituitary extract was used, and the gas pains disappeared. Thereafter, with the use of the lightest of cathartics, no trouble with the bowels was encountered.

The patient progressed satisfactorily. He was vaccinated for smallpox, November 26 (epidemic in Kansas City), and, November 27, he developed a right saphenous phlebitis, which lasted until December 8.

Fluids were pushed to the limit during the first forty-eight hours, at which time active peristalsis was noted throughout the abdomen. November 10, the daily output was 1,400 c.c., while the nightly output was 1,000 c.c. from the tube and bladder combined. During this time, the daily intake of fluids was 3,500 c.c.

Thereafter, the intake averaged 1,700 c.c. in twenty-four hours, and the output about 1,500 c.c. About one third came from the bladder, and about two thirds drained through the nephrotresis into his rubber bag.

The patient was discharged, December 8, and he was allowed to go home, although his temperature was ranging between normal and 99.2 F. His symptoms one month later had practically disappeared, and he was getting stronger and gaining weight. The patient has continued since December 8 gradually to get better, and today he says he feels as well as he ever did in his life. He works every day, and has had no difficulty or pain since the operation.

He now wears his rubber tube, which is changed daily. When the granulations block the sinus, he wears his silver tube, which is fenestrated and which, after wearing for twenty-four hours, opens the sinus, and, on its removal, cuts out the granulations along its course, allowing subsequently perfectly free drainage. He wears the apparatus, which he devised himself, and which drains the urine into a receptacle that he wears on the inside of the left lower leg.

COMMENT ON CASE

The patient on admission was so sick that it was a question whether the kidneys would increase their elimination on the forcing of fluids, alkalization of the blood and the usual local treatments.

However, he responded to his treatments very quickly, and continued to improve. We were forced to consider surgical intervention as inevitable. We already knew that the kidneys were fused, but we did not know how they were fused. The surgeon who had previously operated gladly gave us the information as to the condition he found at the previous operation as herein outlined.

In order to get more definite information, the blood and urine had been studied carefully day by day. Focal infections were considered, and after the urine of catheterized specimens had been studied, we decided that the fused kidneys would secrete under proper environment. Autogenous vaccine caused no improvement.

Several facts were manifest. The kidney stones had been properly removed less than six months before, and the patient did not show improvement following the operation. In fact, he soon became worse. Pain was his chief symptom, and pyuria his important clinical finding. Some improvement followed after five days of retention of a ureteral catheter in the left ureter, and lavage through it.

The pelves of both kidneys were dilated, owing to blockage. The pain and discomfort were caused whenever the urine could not pass the obstructions in the pelves. Under such conditions, it might not take a great while before a hydronephrosis or pyonephrosis might develop. Heminephrectomy was considered unwise. The retention catheter showed relief, if not improvement, from the drainage it afforded.

Two surgical possibilities now confronted us from the operative standpoint. One of these operations was to do a transperitoneal removal of the stones. The other was to leave the stones in situ and perform a nephrotresis.

Dr. Hugh Cabot was seen in consultation at this time, and he advised the removal of the stones. We were about to abide by his judgment, when we were again brought to a realization of the very insecure condition of the patient, and his absolute inability to go through with much more suffering. He had lessened toxicity under treatment, but was gradually becoming weaker.

With a history of rapid recurrent stone formation, it seemed best to make a permanent drainage to the left kidney and pelvis through the loin, or nephrotresis, which would at all times secure ample drainage, should the pelvis of the left kidney become completely blocked at some future time. The right kidney was secreting better than previously, and, so far as excretion was concerned, was entirely a separate organ from the left kidney, as we learned from our embryologic study.

We proposed to do as much as possible under the circumstances at operation. The ideal combination would have been to remove the stones from both kidneys and to perform a left nephrotresis, but the condition of the patient made such a procedure impossible. So it was finally decided that should the patient recover after this operation, the removal of the stones could be more safely done at some future time by the transperitoneal route.

But, until the physiologic chemists find out what was causing the stones to form so rapidly and what was to be done medically to prevent recurrence, we felt we had no assurance that removal of the stones from the kidney would benefit the patient. It is quite possible that the right kidney may gradually develop a hydronephrosis which may form a fibrous wall at the site of the fusion and allow heminephrectomy at some future time. This might not be a simple procedure from the information we have on this case.

Bryant Building.

NEUROTOLOGIC STUDIES IN EPILEPSY

PRELIMINARY REPORT [*]

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On first thought it seems a far cry between the ear, nose and throat and epilepsy. For many years the medical profession has regarded epilepsy as due to a lesion of the cerebral cortex. In recent years, the profession has begun to realize how many phenomena may be produced by lesions of the lower centers, particularly the basal ganglions and brain-stem. Robert Bárány has recently advanced the theory that the center of consciousness is probably located in the basal ganglions, rather than in the cerebral cortex. In the last few years, many neurologists have come to consider that the seat of the disturbance which results in attacks of epilepsy may be in or near the brain-stem. It therefore occurred to me that neurotologic studies, particularly of the vestibule, might shed some light on the integrity of the brain-stem, in patients who suffer recurrent epileptic seizures.

The present report is the outcome of examination of twenty-seven epileptic patients, entirely from the point of view of the ear, nose and throat. General and neurologic examination of each of these cases were made by one or more of the following physicians: S. D. Ingham, Cecil Reynolds, I. Leon Meyers, F. M. Pottenger, Thomas J. Orbison and Carl Rand, all of Los Angeles. They not only provided the material for study, but also guided me in the interpretation of the findings. Almost all of the patients were seen in private practice, and complete clinical histories are available concerning each patient.

On tabulation of the findings in the twenty-seven cases, no characteristic condition was discovered in the nose, nasopharynx, throat, teeth, mouth, external ear, middle ear or cochlea, nor was there any suggestion of intracranial auditory involvement. In contrast, vestibular impairment or abnormality was found in nearly all the cases. Of the twenty-seven, only three showed normal nystagmus, vertigo and pa [illegible] and each of these three showed definite subnormality in constitutional responses to the vestibular tests. They failed to show the usual pallor, sweat and nausea that one finds in the normal, after prolonged turning and douching.

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[*] Read before the Section on La [illegible] inology at the Seventy-Fourth Annual Session of [illegible] tion, San Francisco, June, 1923.

ANALYSIS OF CASES

The age ranged between 3 and 54 years; there were twenty-two male and five female patients.

Intracranial pathologic change was reported in thirteen cases; in the remaining fourteen cases there were no definite organic findings. Syphilis of the central nervous system was present in one case, and in one case, either syphilitic encephalitis or arsphenamin poisoning. Arachnoiditis was present in four cases, one of which also showed cerebellar cysts; external hydrocephalus, in two; meningo-encephalitis, in three. Two patients were probably toxic (one of these, following tonsillectomy, has had cessation of fits for the last ten months to date). Spontaneous subarachnoid hemorrhage was present in one case; suspected brain tumor, in one; suspected right parietal abscess, in one, and a large glioma of the right frontal lobe, in one.

SUMMARY OF EXAMINATIONS

1. *Neurotologic History.*—Dizziness was present in three cases; staggering, in two; deafness, in four; tinnitus, in three.

2. *Spontaneous Phenomena.*—Three patients had nystagmus. One had vertical nystagmus upward on looking up, and on looking to the right the nystagmus was noticeably larger in the right eye than in the left—approximately twice as large. One has vertical nystagmus upward each time he has an attack. There were no cases of vertigo. Past-pointing occurred in two cases, and falling and general swaying in three.

3. *After Turning.*—Nystagmus was prolonged in two cases; normal, in five; subnormal, in nine. One patient showed conjugate deviation to the right after turning to the right, and conjugate deviation to the left after turning to the left; another showed oscillatory nystagmus after turning. Another patient, after turning to the right, showed a larger nystagmus in the right eye than in the left eye. Another patient showed conjugate deviation of the left after turning to the left, but no conjugate deviation to the right after turning to the right. Another patient showed conjugate deviation to the right after turning to the right, although after turning to the left there occurred a distinct quick component to the right.

Vertigo after turning was hyperactive in four; normal in four, and subnormal in nine. Diametric inversion occurred in one case; after turning to the right, the patient felt that he was turning to the right instead of to the left, and after turning to the left, instead of vertigo to the right, he had vertigo to the left.

Past-pointing was hyperactive in four cases, normal in three, and subnormal in five. One of these patients showed a poor past-pointing of each arm inward; another showed absent past-pointing of the right arm to the right.

Hyperactive constitutional responses were not noted. They were normal in one case and subnormal in twenty; of these there was a striking absence of any pallor, sweat, nausea or vomiting in eight cases.

4. *After Douching.*—Nystagmus was hyperactive in one case; normal, in three; subnormal, in sixteen; abnormal, in four. One patient had vigorous nystagmus, but a tendency to conjugate deviation on stimulation of each horizontal canal; one patient had perverted nystagmus from the right horizontal and delayed response from the left vertical canals and perverted from the left horizontal; another, perverted nystagmus from the right horizontal. Another patient had a large perverted nystagmus produced by the right vertical canals and also by the left vertical canals; furthermore, the right vertical canals not only produced the wrong type of nystagmus, but there was a different type of nystagmus in one eye from the other. Another patient showed a tendency to conjugate deviation from the right horizontal canal; also perverted nystagmus from the left vertical canals and perverted nystagmus from the left horizontal canal. Another patient presented a peculiar phenomenon: when the right ear was douched, nystagmus occurred more quickly than usual, and this nystagmus increased to a fair amplitude; but as the douching was continued, instead of increasing, the nystagmus disappeared entirely. The same phenomenon also occurred in this patient when the left ear was douched.

Hyperactive vertigo after douching was not observed. It was normal in six and subnormal in fourteen; of these, five showed no vertigo response whatever, and one patient showed no vertigo on stimulation of any canal except the right horizontal.

Past-pointing was hyperactive in two, one being hyperactive from the verticals, but normal from each horizontal; normal, in four; subnormal, in eleven; of these, in one case past-pointing was entirely absent. It was abnormal in four.

Falling was hyperactive in one case; normal, in nine; subnormal, in eleven. One patient showed no fall to the right, but was normal to the left. Another patient was normal to the right and subnormal to the left. Another patient had no fall to the right, but was normal to the left.

Constitutional responses were hyperactive in one case, normal in two, and subnormal in twenty; of these there was a striking absence of any pallor, sweat, nausea, or vomiting in eleven cases.

Differentiation between the vertical and the horizontal canals was obtained in six cases. One showed good response from the right vertical canals, but poor response from the right horizontal canal; also good response from the left vertical canals, but poor response from the left horizontal canal. One patient showed no responses from any canal or set of canals, except the right horizontal. In one case the left verticals produced a wider past-pointing than the left horizontal. Two patients showed poor response from the verticals and good response from the horizontals.

5. *Auditory Function.*—In the face of the foregoing varied vestibular subnormalities and abnormalities, it is important to note that almost all of these twenty-seven patients showed normal cochlear function. The hearing was entirely normal in eighteen cases. Two patients showed slight impairment of each cochlea. One patient showed both cochleas dead—it appeared that possibly there were certain islands of hearing; this was the patient with diffuse central nervous syphilis.

SPECIAL COMMENT

From the apparent chaos of the foregoing observations, the following facts are clear:

1. A surprisingly large number showed vestibular impairment and abnormality. All of these vestibular deficiencies were of central type, with only one excep-

tion; the almost uniformly normal auditory mechanisms tend to confirm this.

2. One is impressed with the subnormal constitutional responses. After turning, the constitutional responses were subnormal in twenty out of the twenty-seven cases; in eight of these cases there was no pallor, sweat or nausea whatever. After douching, the constitutional responses were subnormal in twenty-one of the twenty-seven cases, and in twelve of these cases there was no pallor, sweat or nausea whatever.

3. Mr. L. C., aged 35, after turning four times to the right was seized with his typical epileptic attack. He did not draw the head in any particular direction. He was quite unconscious; at first he gazed straight ahead with a blank expression, then became pale, and then markedly cyanosed. After recovering consciousness, he stated that he had felt the attack coming on almost at the beginning of the turning.

4. Miss B., aged 25, daughter of an intelligent physician who has observed her closely, showed distinctly impaired vestibular responses both to turning and to douching. In spite of the subnormal vestibular impulse, she manifested terror after turning or douching. We attempted to reassure her, but it was difficult to secure her cooperation, although she was not only intelligent but most willing to help. Finally she said: "The reason for being frightened is that each time you turn me or douche my ear, I feel just as I always do before I have an attack." She had no attack; but on repeated tests over several days, each vestibular stimulation produced her aura.

5. Mrs. O. H. T., aged 47, after three and one-half minutes' douching of the right ear had a "spell"—however, not the same as her usual attacks. All voluntary muscles relaxed; respiration was rapid; there were no convulsive movements. The patient was apparently unconscious, but afterward stated that she did not think she had been completely unconscious but only felt extremely weak and unable to speak. This state of collapse was not a vestibular phenomenon in the usual sense; it was decidedly different from a state of shock—in fact, there was a singular lack of constitutional responses. Although the douching had been continued three and one-half minutes, there was no pallor, sweat or nausea. Later, douching the left ear produced another "spell"; she did not lose consciousness, but became flaccid and relaxed—not so marked as after douching the right ear.

No conclusions, even tentative, should be drawn from the foregoing. We must bear in mind that perhaps the next twenty-seven patients might show perfectly normal responses to vestibular tests. However, the phenomena suggest that the fairly well known vestibular mechanism is connected with the unknown mechanism through which epileptic phenomena are produced. It seems possible that neurotologic study of a very large number of epileptic patients might not only throw some light on the eternal problem of epilepsy but also bring forth information concerning the basic physiology of consciousness.

The actual cause of the manifestations of epilepsy and the location in the brain where the explosion is set off are matters of theory. There is a good deal of evidence that the importance of the cortical centers has been overestimated, and that disturbances of the lower centers have been overlooked. The findings reported in this paper, i. e., abdominal vestibular reaction to standard tests, constitute a high percentage of objective evidence; probably higher than has been obtained from any other one method of study. Confirmation and further observations are needed along this line.

CATARACT EXTRACTIONS PERFORMED BY PROF. JOSEF MELLER OF VIENNA, 1919-1921

REVIEW OF TWO HUNDRED AND FORTY-NINE OPERATIONS *

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There are two good reasons for presenting this paper. The first is that the statistics of cataract operations performed by Professor Meller will show what can be done in the way of obtaining good results under the most trying circumstances imaginable. The other, to present an accurate statement of operative results obtained by one operator on a uniform material over a sufficient number of cases by standard methods. Recent literature has been entirely too full of loose statements regarding cataract results; statements which give visual results as, for instance 20/20 or over, and do not give the percentage of cases in which the vision was 20/200 or less; papers by inexperienced operators covering a small number of cases with unripe and hasty deductions, and finally, broad statements regarding the high percentage of excellent visual results obtained by the exclusive use of some one method without statistics covering the percentage of losses, or mention of the sequelae and incidents of the operation tending to produce poor results. We have yet to find an analysis of cases in either the Smith or the Barraquer[1] method, such as we may find if we go back some years and look over the very carefully prepared statements of Knapp[2] in 2,300 cases, of Haab in 500 cases, and of Noyes'[3] compilation of 10,661 linear extractions and a further 5,566 linear extractions at the hands of six skilful operators, as well as that of Ring,[4] who analyzed 1,032 cases of combined extraction and 1,123 of simple extraction at the hands of Knapp, Agnew, Webster, H. Derby, Schweigger and others. Parker's[5] paper, analyzing his results in 1,034 cases, and the thesis of Meyling,[6] analyzing the results of the clinic at Leyden in 1,058 cases, are the only recent papers bearing comparison with the analysis of cases of twenty and twenty-five years ago. In reviewing the cases of operation in Meller's clinic, I took from the very carefully prepared histories containing mention of every possible preoperative and postoperative incident only those in which operation was performed by Meller himself. About as many more operations as here listed were performed during the same period by his skilful assistants, A. Fuchs and Bachstetz. For the sake of a standard comparison, however, the records of Meller's operations alone were taken.

The conditions during the first year of this operative material were such as have seldom, if ever, obtained in a university clinic of such reputation. These conditions, owing to the postwar state in Vienna, were enough to discourage any but the most courageous operator. The material, never particularly intelligent or cleanly, was worse than ever. Patients had had no opportunity, time or money to keep their bodies in physical repair. No dental, nose or throat work, no treatment of skin diseases, was possible. Observing a nephritic or diabetic diet, in patients nourished on poor potatoes and sawdust bread, was out of the question. Many of them traveled long distances in emaciated condition with sunken eyeballs, due to malnutrition, arriving at the clinic in poor shape mentally and physically, old and decrepit people after the years of suffering and starvation. At the clinic they did not have the reception accorded them in former years. The food was not much better there than at home. The wards and the operating rooms were not heated, so that Meller often operated with icy hands. No gas was available; the trained helpers of former years were dead, sick or missing. There were no agar, no dyes and no possibility for a bacteriologic examination. The instrumentarium was old and in bad condition; good instruments had been used up. The instruments available were of poor nickel and poor edge. In spite of these conditions, work was commenced, and in a very short time the beds were again full of cataract patients who had, some of them, waited during the entire war years for the time to come when they could gain entrance to the hospital in Vienna.

Table 1.—*Methods of Operating*

Hess	180
Combined extraction	46
Preliminary iridectomy	2
Weber's loop	8
Lance incision	8
Simple extraction	3
Discission	2
Total	249
Uncomplicated cases, total	174
Cases in which good vision could not be expected	75
Vitreous loss, total	5%
Vitreous uncomplicated cases	1.34%

Of pre-operative attention to teeth, nose, throat, skin or general constitutional diseases, there was, and could be, very little. Teeth were not extracted, tonsils not removed; and although diabetic patients were first sent to the medical wards and an attempt made to reduce their sugar, any painstaking efforts to get the individual into good condition for his operation were out of the question. Bacteriologic examination of the conjunctiva, for reasons stated, was not performed. If the tear ducts were patent and no gross conjunctivitis existed, operation was promptly performed. Table 1 shows the method of operating. Whenever possible, the method of Hess (performed previous to Hess by Chandler of Boston, and Pflüger of Bern) was used.

TECHNIC OF OPERATION

The patient walks to the operating table, which is firmly anchored to the floor. The operator sits at the patient's right hand side, and therefore operates on the right eye with his left hand and on the left eye with his right hand. The assistant stands opposite the operator, and by means of his thumbs spreads the lids apart. A nurse at the head illuminates the field with the Hess hammer lamp. Another nurse at the head stands holding the pledgets soaked in weak mercuric chlorid solution. The instruments are boiling at the left hand of the operator, and can be taken out and put back into a small sterilizer by the operator himself quickly and without lost motion. After cocainization with 4 per cent. cocain and finally a drop of 10 per cent., an incision embracing a liberal upper one third of the cornea and ending with a small conjunctival flap is made. This incision is made frequently with one forward and one backward sweep of the knife. Occasionally a third short stroke with the knife edge turned almost facing the operator is taken to cut through the conjunctival flap. The capsule forceps are promptly introduced and as large a bite as possible of the anterior capsule taken. Meller spreads the arms of the forceps apart so that they often dilate the sphincter, obtaining a large piece of capsule. The upper lid is held with the thumb of the left hand, pressure is exerted by the index finger of the right hand against the lower lid, and the cataract is expressed. Meller expresses an amazing quantity of cortex by never relaxing on this pressure and thereby not allowing cortical masses to sink backward. No irrigation and no spoon to shovel out cortical remnants is employed. The iris is then reponated so as to obtain a perfectly round pupil. The conjunctival flap is stroked over the cornea, the base of the iris is pulled out slightly by means of sharply bent Hess forceps, and the smallest possible basal iridectomy performed. Should some cortical masses still be in evidence after this procedure, massage is again employed, and occasionally a surprising amount of cortex is expressed through the basal iridectomy. The iris is again brought into position, the conjunctival flap folded into place, and the eye closed. A binocular mask or tin cups covering both eyes do for the dressing. The patient walks back to his bed, and if the anterior chamber is formed at the dressing next morning, he is allowed to sit on a chair with the unoperated eye open. In uncomplicated cases the patient is discharged in from ten days to two weeks, at which time visual results are recorded. He is asked to return four weeks afterward for the estimation of his permanent glasses.

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Barraquer: Phakoeresis, Am. J. Ophth. 3, No. 10.
2. Knapp: Arch. f. Augenh. 23, 1891.
3. Noyes: Tr. Am. Ophth. Soc., 1879.
4. Ring: The Combined Versus the Simple Extraction of Cataract, Med. Rec. 37, 1895.
5. Parker, W. R.:- Senile Cataract Extraction, J. A. M. A. 77: 1171 (Oct. 8) 1921.
6. Meyling: Operaties aan de Lens van 1895 tot 1918 Vericht in de oogheilkundige Kliniek te Leiden.

TABLE 2.—*Fundus Lesion and General Complications*

Number of Case	Condition	Vision
Men		
1	Toxic amblyopia with central scotoma	6/36
5	Senile atrophy, optic nerve	6/18
53	Fresh choroiditis and vitreous opacities	6/60
64	Optic atrophy, postneuritic	fingers, 1 m.
83	Deafness, hemiplegia, senility	??
89	Von Recklinghausen's disease, with previous retinal hemorrhages	6/18
90	Amblyopia, toxic	6/36
114	Nephritis, chronic, and arteriosclerosis	6/8
124	Cataracta nigra	6/12
130	Amblyopia exanopsia	6/24
121	Myocarditis with beginning decompensation	6/18
12	Glaucoma, chronic	fingers, 1 m.
43	Heterochromia iris, with precipitates	6/18
23	Retinochloroiditis, old, central	6/60
68	Atrophy, nerve, postneuritic central scotoma	6/12
81	Retinochoroiditis, central	6/60
105	Diffuse chorioretinitis	6/12
125	Senile macular changes, disk pale, inversion of vessels	6/60
136	Choroiditis, probably tuberculous	6/18
17	Central macula corneae	6/24
19	Subluxation of lens	fingers, 1 m.
30	Nystagmus, congenital	6/24
80	Chronic iridocyclitis, tuberculous	6/60
88	Chronic iritis	6/8
106	Nystagmus, atrophic iris	L. P. and P. in 1 m.
92	Adhesions, iris to lens	6/18
Women		
15	Tremulous iris	6/8
51	Cataracta accreta calcarea	6/18
71	Tatooed scar, cornea; optical iridectomy	6/18
73	Incipient zonular opacity, cornea; old macula; old iridocyclitis	fingers, 0.5 m.
80	Macula corneae; marked irregular astigmatism	6/24
94	Central macula myopia gravis	6/60
44	Heterochromia	6/18
43	Glaucoma, chronic	6/18
45	Glaucoma, chronic	6/9
89	Glaucoma, chronic	6/60
16	Mental depression	?
32	Mental confusion	6/60 ??
35	*Cataracta nigra*	6/36
46	Cataracta nigra	6/12
69	Cataracta nigra	6/12
17	Choroiditis disseminata	6/36
49	Nephritis, chronic	6/12
60	Macular changes, senile	6/12
65	Central choroiditis; retinal hemorrhages; central scotoma	6/36
66	Atrophy, nerve; choroiditis disseminata; vitreous opacities	fingers, 0.5 m.
77	Central choroiditis with central scotoma	fingers, 3 m.
82	Central choroiditis with vitreous opacities	6/24
99	Central choroiditis with central scotoma	fingers, 1 m.
104	Temporal pallor of disk with central scotoma	fingers, 2 m.
109	Macula corneae; central myopia gravis	6/36

FACTORS GIVING THESE STATISTICS AN EXCEPTIONAL VALUE

1. Each patient, after having been examined with the utmost detail by the assistant, is presented to Professor Meller, who himself examines the patient the day before, or the morning of, the operation.

2. Every operation was done by Meller, to whose surgical judgment and skill it is not necessary to refer.

3. The material is composed of approximately the same type of individual.

4. The patients were seen daily and the eyes dressed by men of experience.

5. Every postoperative complication arising was seen by Meller.

6. The final status of the case was observed and dictated by Meller.

7. Each case was from beginning to end so carefully described, and even incidents of practically no clinical importance so thoroughly recorded, that no misunderstanding could exist in the mind of any reviewer of these cases as to what had occurred and as to what the final results were.

RESULTS OF OBSERVATIONS

Two hundred and forty-nine cases came to operation. Of these, the uncomplicated cases total 174, the complicated cases, seventy-five. It is to be seen immediately that the percentage of complicated cases in this material is very high.

Table 2 gives the essential complicating factor in each case. These cases were selected from the others with this point in view; namely, that any condition existing before operation, which would make it impossible to secure good vision, irrespective of the type of operation, should be put into a separate table. A careful study of this table is urged. The unexpected good vision often in cases of small promise is surprising.

TABLE 3.—*Myopia Gravis (Seventeen Cases)*

Number of Case	Vision
Men	
25	6/8
28	6/12
34	6/6
35	6/12
79	6/18
112	6/24
Women	
13	6/12
25	6/60
31	6/24
40	6/18
63	fingers, 3 ft. (ret. det).
67	6/36
69	6/12
88	fingers, 6 ft. (vit. opacities)
94	6/60
101	6/12
109	6/36

Table 3 gives the results in the myopic cases. "Myopia gravis" *om* [illegible] case records means myopia exceeding 1 [illegible] such cases. No [illegible] ome vitreous loss. Considering the widespread fundus changes found in almost all of them, the visual results are surprisingly good, with only one case a dead loss, owing to retinal detachment occurring two months after operation.

Table 4 lists the diabetic patients. Of these there were seven, running from 4 to 10 per cent. of sugar.

Table 4.—*Diabetes*

Number of Case	Vision
Men	
115	6/60
116	6/18
118	6/18
133	6/8
Women	
52	fingers, 3 ft.
97	6/12
107	6/36

Many other cases in this material showed traces of sugar, or a low percentage, and are not included in this statement. There was no infection, and the poor vision in several of these cases can be referred to fundus changes.

Table 5 shows the number of vitreous losses and the vision. I would point out that not one such eye was lost. A number of the patients had useful vision, and it will be noted that some of these had myopia gravis, and that most of these cases belong to the complicated series. Imagine such vision as these patients show if an operation, such as the Smith-Indian, had been used. The total vitreous loss was 5 per cent., and this in a material of which 18 per cent. can legitimately be called complicated in the sense of eyes likely to give trouble during operation. The vitreous loss in the uncomplicated cases equals 1.34 per cent.

Table 5.—*Vitreous Loss*

Number of Case	Condition	Vision
Men*		
25	Myopia gravis	6/8
41	Lens does not present Weber's loop	6/36
81	Lens does not present considerable pressure used	6/60
92	Traumatic cataract; adhesions, iris	6/18
118	Lens does not present pressure	6/18
Women†		
2	Hypermature lens, loss minimal	6/18
8	Vitreous with incision	6/12
25	Myopia gravis, slight loss	6/60
31	Myopia gravis, slight loss	6/24
43	Glaucoma, chronic; unruly patient	6/18
73	Old iridocyclitis; zonular opacity of cornea; corneal maculae	fingers in 1 m.
110	Minimal loss	6/18

* All belong to the complicated group, except Case 41.
† All belong to complicated series except Cases 2, 8 and 110.

Table 6 gives the main postoperative complications. Rupture of the wound occurred with relative frequency, but in only one case was it of consequence as regards the final vision. No great number of these ruptures occurred on any one specific day; that is, no particular number occurred on the first day out of bed, or on the first day of walking about the ward. The occurrence seemed to depend on the patient himself. Those with a chronic cough, and stupid, nervous and irritable people formed the candidates for rupture of the wound. The majority of these ruptures occurred in the first hundred cases of the series when skilled attention in the wards was not available, and very little control over the patient's actions could be observed. The iritis cases, numbering twenty-six, include every case which showed an adhesion of the iris to cortical remnants accompanied by ciliary injection. Many of these can scarcely be dignified by calling them a postoperative complication. Sixteen of them in no way disturbed the patient or formed the basis for subsequent disturbance of vision in the form of pupillary exudate. The other ten were marked cases of iritis, four occurring in patients with high grade diabetes, and two in severe chronic nephritis cases. The two acute infections requiring immediate enucleation occurred on the second day.

Table 6.—*Postoperative Complications*

	Number
Rupture wound	27
Iritis	26
Iris prolapse	4
Glaucoma	2
Vitreous in wound excised	1
Infections, acute, enucleation	2

Table 7 gives the vision of the uncomplicated cases in three columns. The first column on dismissal two weeks after the operation, the second, the final vision ascertained between four and six weeks after the operation, and the third the vision at dismissal of those who did not return. Of these, quite a number did not return because of difficulties in travel and finances. No doubt many were satisfied with the vision obtained, and we see from the second column that they undoubtedly improved in a marked fashion from four to eight weeks after leaving. Many of those not returning therefore had much better vision later than is credited to them in Table 3. They may have obtained glasses in their home, or their other eye remained with good enough vision so that its use was satisfactory enough and a return to the clinic not thought to be of particular advantage. When one studies the first and second columns, one can readily see that those not returning for final vision, in the third column would, if they had returned, swell considerably the number of the final visions, second column, of 6/12 or over. This conclusion is justifiable when one notes the large number of cases in the first column below 6/12 and the relatively few below 6/12 in the second column, and how, in the second column, the number of those over 6/12 has increased in comparison with the first column, and necessarily from those below 6/12 in the first column. In the first column nearly one half of the cases fall into the group of 6/12 or better, two weeks after operation, a most striking fact. In the second column, ninety-five out of 111 have vision of 6/12 or better. Of these, only two have this increase over their vision on dismissal by virtue of a

Table 7.—*Final Vision; Uncomplicated Cases; Total*

	Vision on Dismissal Column 1	Vision Final Column 2	Vision on Dismissal and Not Returning Column 3
6/5	1	5	1
6/6	14	32	3
6/8	9	20	5
6/9	6	15	1
6/12	49	23	17
6/18	43	9	15
6/24	12	4	3
6/36	15	2	7
6/60	7	1	2
Fingers, 3 ft.	8		
Fingers, 2 ft.	1 (6/12 on discission)		
Fingers, 20 ft.	2 (6/12 and 6/18 on discission)		
L. P. P. N.	1 (6/18 on discission)		
L. P. P. N.	1 (Enucleation beg. atrophy)		
Acute infection	2 (Enucleation)		

discission. One of the cases was raised to 6/18 from fingers at 2 feet; another to 6/18 from perception of light.

It can be safely stated that, if discission had been performed, the twenty-three cases in the second column of 6/12 and the sixteen cases below 6/12 would easily have fallen into the group of 6/9 in the first case, and 6/12 or better in the second. As most of the patients were satisfied with 6/18, and as many of them had an unoperated eye of 6/18 or better, discission was not called for in this type of material. One notes also almost without exception that the patients dismissed with 6/12 and 6/18 move up into the 6/9 or 6/6 column when returning four weeks afterward. It was found that in 81 per cent. of all cases a clear view was obtained of the fundus at dismissal, and that there was a description of the fundus in these, showing in a striking fashion that there was present in this percentage a clear hole through cortical remnants or an entirely clear pupil. This can be traced to the consistent use and the perfect use of the capsule forceps. Even when considerable débris remained at operation—which was not often—a remarkable amount of absorption had taken place in two weeks, owing to the fact that the epithelium of the anterior capsule could not proliferate over the capsulectomy area, and that the aqueous therefore had constant opportunity to exert its action on such cortical débris as was still enclosed in the capsule. The use of the capsule forceps also rendered unnecessary many discissions that would undoubtedly have had to take place had the cystotome been used. Only in the myopic cases does this advantage of forceps over cystotome not always apply, for in these there is sometimes epithelium on the posterior capsule which thickens and forms an obstruction to good vision so that in these cases the effect of the capsulectomy forceps is sometimes less marked. Among the visions of less than 6/60 we note fingers at 3 feet eight times. These cases were as follows:

1. A very unruly patient during operation; extraction with total iridectomy. At the first dressing there was chemosis of the flap; the wound edges were gray, and there was marked iritis. The second day there was hypopion. The patient was discharged with slight ciliary injection and a dense pupillary membrane.
2. Myopia of 10 diopters, with a Hess extraction. There were hyphemia and slight iritis, with considerable cortex during healing. The patient was discharged with considerable cortex and ciliary injection, and did not return.
3. Hess extraction was performed without operative or postoperative incident. The patient was dismissed with considerable cortex, and did not return.
4. Hess extraction was performed; the iris showed a tendency to bulge into the wound. There was a slight prolapse of the iris the third day. There were iritis, hyphemia, and organization of the cortical remnants, with marked ciliary injection and dull cornea. The patient was dismissed with an organizing pupillary membrane and subacute iritis.
5. Hess extraction was performed in a patient with chronic bronchitis. There were slight hemorrhages about the nasal edge of the wound several times, and on the eleventh day there was considerable blood in the anterior chamber.
6. A patient, aged 87, in poor physical condition, had had the sac removed four weeks before operation. The operation was a Hess extraction without complications. Two days later, a violent iritis and profuse hypopion occurred. Milk injection seemed to stop the process short of its usual course. The patient was dismissed with a pupillary membrane and slight hypopion.
7. The Hess operation, without incident, was followed by iritis, deep chamber hyphemia from the hemorrhage of the iris vessels, secondary glaucoma, and occlusion of the pupil. The patient was dismissed against advice with a mixed injection, dull cornea, deep chamber, discolored iris, pupil small, synechiae numerous, and pupillary membrane; he did not return.
8. The Hess operation was performed on a man, aged 75, whose tear sac had been excised; prolapse of the iris occurred on the second day after excision. The nasal pillar was pulled upward; there were blood and a small amount of cortex in the pupil on discharge.

Five of these eight patients were never heard of again. Three of them returned, two with vision of 6/18 and one with vision of 6/24. The remaining patients with vision below 6/60 were given serviceable vision by discission, as noted in Table 8. Three eyes were lost: one was enucleated because of beginning atrophy following iridocyclitis and two removed because of acute infection occurring on the second day after operation.

In summing up the final vision and considering the uncomplicated cases first, we can fairly say that the results are surprisingly good. I say "surprisingly" advisedly. With the material and conditions as they were, it is safe to say that any method aiming to extract the lens by pressure or pull or both combined would have resulted in a large number of unsatisfactory results. If one discounts altogether the material and the conditions, the statistics still remain exceedingly satisfactory, as can be seen by the fact that ninety-five out of 111 returning for final estimation of vision had 6/12 or better without discission. In judging these visions it must not be forgotten that the refractions from which these visual results were obtained were not in many cases particularly accurate. There was an immense amount of work to do, and many of the refractions in the first hundred cases, at least, were done by men not expert. The amount of attention which we in private practice devote to the utmost correction of our cataract patients was certainly missing. Refraction as done in private practice might not materially alter the 6/18 column or those lower, but might easily raise the 6/12 to 6/9, or the 6/9 to 6/8 in a fair number of cases.

Using the Hess method with anywhere near Meller's skill, we would not exchange these results for any method that might bring us a few extra 6/5 cases, and, just as certainly, judging from the statistics of the Smith operation in this country, increase our total losses and irreparably poor results by a good margin. Hardy[7] gives the results of forty-one cases, five months after the Smith operation, giving all due credit to Smith's unfamiliarity with his surroundings and the general psychology of operating under these conditions. There was vitreous loss in eleven, or 23 per cent.; iritis in twelve, or 34 per cent.; iridocyclitis in 36 per cent.; choroidal hemorrhage in five, or 12 per cent., and prolapse of the iris in nine, or 24 per cent. There was perception of light in six; amaurosis in four, and enucleations in three. Vision was not recorded, but bad, in four. One can scarcely comment. Fisher's[8] recently corrected statistics of Smith's operations in Chicago give 64.3 per cent. of thirty-one eyes as 20/30 or better. It was not stated what the vision of the remaining eyes was. If we further consider that discissions in twenty-three out of ninety-five of these cases would raise the twenty-three of 6/12 vision [illegible] practically all cases into [illegible] 6/[illegible] [illegible] believe that we should cheerfully perform these discissions in what would be 24 per cent. of our cases, and we should then be left with ninety-five cases out of 121 averaging 6/9 or better. And if we further increased our discissions by sixteen cases, we should raise our material in the 6/18 to 6/60 column to an average of 6/18 at least. That only two acute infections took place in this material is astonishing, and is a great tribute to the marvelously rapid and smooth operating of Meller.

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[7] Hardy, W. F.: Cataract [illegible]

[8] Fisher, W. A.: Co[illegible] Operations, Am. J. Ophth.

In reviewing these statistics and remembering two years during which I had the privilege of being in Meller's ward assisting him in the great majority of operations, I feel that the teeth, the tonsils and the sinuses play a very minor part as direct agents in ocular wound suppuration, and that the skill of the operator, the handling of few instruments, and gentleness of manipulation are the decisive factors. Along this line of thought, let us go back a few years. In 1892, Haab performed 600 consecutive operations, with only one eye lost by infection. His statistics are very minute and painstaking. It is safe to say that, in his material of Swiss peasants, not every abscessed tooth was pulled before operation. In 1,284 extractions reported by Köllner [9] in 1906, the infections were 0.5 per cent.

In this article, no reference is made regarding attention to teeth, throat or sinuses. In 600 cases of Hess between 1905 and 1909 at Wurzburg, only one was lost by infection. I believe thoroughly in putting the patient in good general condition and in eliminating gross foci of infection. I would much rather, however, operate on a patient in good general condition with some abscessed teeth or foul tonsils than on a patient without tonsils and without teeth but old, feeble and with poor circulation. In Meller's series, the vitreous loss of 5 per cent. in the total number of cases, and of 1.34 in the uncomplicated cases, is small. Loss of vitreous is infrequent, partly because of the method of holding the lids apart with the thumbs. The patient does not feel the constant disagreeable pressure of the speculum; the lids can be released instantly, and between the various steps of the operation are allowed to be closed. The patient is requested to open his eye at various times, which he does easily and naturally, and only then are the lids separated by the thumbs. The whole process is one that eliminates, as far as is possible, the almost certain damage done by the well known "squeezer." Referring to some of the vitreous prolapses in other statistics, we find 1 per cent. in Haabs'; 5.8 per cent. in 10,661 compiled by Noyes, and for six operators with 5,566 extractions, 4.8 per cent. A. von Graefe had 2.8 per cent. in 699 cases. Meyling, reporting the extractions in Leyden from 1895 to 1918, a total of 1,058, records 6 per cent. with iridectomy in 315 uncomplicated cases, and 3.9 per cent. in 129 without iridectomy. Ring, in 1,032 cases of combined extraction, records 6 per cent., and in 1,123 of simple extraction, 3 per cent. Incidentally, he states that in the simple extractions iritis was less by 1.33; suppuration less by 0.61, and total failures less by 1.59.

Statistics are notoriously fallacious unless all the factors leading up to them are rated and apportioned equally, as they fall to one side or the other of the comparison, and one can see that unless simple extractions are done in an unbroken series including an average number of complicated cases, a fair comparison with results obtained in a series of combined extractions cannot be made. Usually, extractions with iridectomy are done in the more complicated type of case; and, naturally, in a great number of them more unpleasant incidents are reported, else, indeed, the judgment of the operator in having decided that these patients needed an iridectomy would come into question. Most of the statistics of the period quoted were brought together because of the contest between the adherents of the combined and those of the simple extraction. The Hess extraction eliminates this contest. It leaves the patient with a round pupil and cosmetically perfect eye. It avoids the unpleasant dazzling of the iridectomy as well as the disturbing effect of whatever astigmatism there may remain, which is decidedly less appreciated with a round pupil than it is with a coloboma. It provides, however, the essential of the total iridectomy; namely, the protection against iris prolapse. The peripheral iridectomy, lying as it does in juxtaposition to the apex of the incision, allows aqueous to flow through it and separate iris tissue from the lips of the wound. There were just two iris prolapses in the 180 Hess extractions, and two in the combined. An operator capable of performing a Hess extraction need not even in immature cases turn to procedures that are admitted by most operators of experience today to have too great a percentage of loss. A large capsule bite, persistent massage of the débris, and a peripheral iridectomy will yield, though perhaps with from 10 to 20 per cent. of discissions, as good an average visual result as any intracapsular operation, and much less actual loss. I believe firmly in exposing every fifth patient to the possible dangers of a discission rather than exposing every fifth patient to the dangers inherent in the Smith method. Discissions in modern days of asepsis cause trouble in only rare cases.

If the discission is done with two needles and subconjunctivally, the danger of infection and traumatism to the ciliary body is practically nil. Denser membranes can be removed as Hess was already in the habit of doing in Wurzburg in 1909, by opening the chamber with a lance and extracting with forceps, or, as he now does, by inserting specially constructed iris scissors into the anterior chamber, and cutting across the membrane. We must be more than fair in looking about for methods that will still further improve our cataract results. Our first consideration should remain the highest amount of good vision compatible with the least amount of danger. The time may come when a large series of the more radical methods of cataract operation is accurately worked up. Witness the literature involving more than 20,000 cases of the classic method thoroughly worked up and statistically checked. Not before such a time have the adherents of the intracapsular method, and particularly the Smith and Barraquer methods, any firm basis on which they may even enter a discussion. Their claim to fame lies in their relatively high percentage of 20/20 or better cases. They look with disdain on the columns of 20/30 and 20/40 vision. What, after all, do we mean, practically, with these figures? Our cataract patients do not spend the rest of their existence wandering around the streets with Snellen's charts carried 20 feet ahead of them by an obliging sandwich man. The man with 20/30 can as readily tell, at a block's distance that which is important to see, as for instance, the number of a street car, or the hand of a traffic officer, as can the man with 20/20. The man with 20/40 can at three quarters of a block's distance see these objects as well as the two others.

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[9] Köllner: Erfahrungen an 1,284 Kataract Extractionen mit Iridectomie, Ztschr. f. Augenh. 15, 1906.

And all of them can read the newspaper. The method that gives the great majority from 20/20 to 20/40 and a small minority vision poorer than this will remain, I believe, the method of cataract extraction until some much safer method than the Smith-Indian at least, or the Barraquer is devised. This method may consist of a further evolution of such procedures as advocated by Knapp, Török and Verhoeff.

CONCLUSION

I cannot do any better than give, if not the words, at least the thought, expressed in Parker's recent papers; namely, that intracapsular procedures must stand the test of comparison with the combined extraction performed on patients selected with equal care. I should add that even the combined extraction will not quite stand the test of comparison with the extraction with Hess' peripheral iridectomy, and capsulectomy with capsule forceps. Lancaster's remarks, discussing Parker's paper, struck me as being particularly happy. He stated that the combined operation would take us by storm if it were now published for the first time. I am sure his remarks equally fit the Hess operation with Meller's results.

MODERN AIDS TO CATARACT EXTRACTION *

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Although a number of writers have called attention to the advantages of paralyzing the orbicularis by the injection of procain before operating, it hardly seems as though the method were as widely adopted as it deserves to be. In my opinion it constitutes one of the greatest advances in the technic of cataract extraction that has been developed in recent times.

I began to use it more than two years ago, and it has proved so valuable that now it is a routine procedure in all cataract operations performed in my service at the Massachusetts Charitable Eye and Ear Infirmary. The technic of the injection is probably well known to you all. It is made slightly posterior to the point at which the vertical tangent of the external wall of the orbit meets the horizontal tangent of the lower orbital margin. The needle is introduced along the lower orbital margin close to the bone, so far that the injection will reach nasally to the line of the inner canthus. It is then withdrawn and introduced upward along the external margin of the orbit until the injection reaches the level of the upper margin of the orbital wall. I find that 2 c.c. of 2 per cent. procain, to which a small amount of epinephrin has been added, is enough to accomplish the desired purpose, 1 c.c. for each injection. In seven or eight minutes, the operation may be begun; in from ten to fifteen minutes, the full results of the injection are obtained; the lids are relaxed and remain so for an hour or more.

I have analyzed the last 100 cases of cataract extraction done in my service. The time covered runs from Dec. 1, 1921, to March 1, 1923, a period of fifteen months. These cases are unselected, but form the general run which come to the clinic and to the office. Naturally, linear extractions done on young patients are excluded, also patients having a dislocated lens and patients in whom the cataract was a complicated one showing synechiae and the like; one case of expulsive hemorrhage has also been excluded. Of the operations, I performed seventy-two, including thirty-nine private cases; twelve were done by Dr. R. C. Cheney, and sixteen were divided among the three successive senior house surgeons. In four cases there was loss of vitreous, 4 per cent. Two of these were house surgeons' cases. In one of the latter, extraction was carried out by the Török method, combining traction with the Kalt forceps, and pressure with the squint hook on the lower part of the cornea.

My own percentage of vitreous loss was two cases out of seventy-two slightly more than 2.5 per cent. In one of these, an earlier case, the patient was a bad actor who had a fluid vitreous, and I am confident that the injection was not properly given, for he succeeded in squeezing out the speculum. The second case went without incident until, during the toilet of the wound, a large bead of vitreous appeared without the slightest pressure on the part of the patient. I thought it was the beginning of a choroidal hemorrhage; but, as it neither advanced nor receded, I felt obliged to excise the vitreous and close the wound. Both of these patients obtained vision of 6/6 or better, a fact that is neither here nor there, but was gratifying to me. In every suitable one of my cases an attempt was made to extract in capsule by the Knapp method; perhaps a quarter succeeded. In nearly all cases an iridectomy was done. In two cases the lens was dislocated by the Barraquer apparatus and then extracted by pressure.

It is easy to make figures prove any point, and we cannot place too much reliance on them. It is very hard to compare series of cataract extractions on account of different methods used and the varying skill of different operators. Although the figures are not present to show it, I know that my vitreous loss with lid injection is very considerably less than in the days before we used it. Of other series I may be permitted to quote one or two. In 232 cases of combined extraction, Schoeler lost vitreous in 14, i. e., 6 per cent. Ring compiled the cases of various operators. In 808 simple extractions, there was a loss in 4.27 per cent. In 1,032 combined extractions, there was a loss in 7.23 per cent. In Dr. Barkan's report of Meller's series, the vitreous loss in the hands of a very skilful operator was 5 per cent. for all, and 1.34 per cent. for uncomplicated, cases, Parker's series gave a loss of 10.1 per cent. in 1,421 cataract extractions. Meyling (quoted by Barkan) gives 6 per cent. in 315 cases with iridectomy, and 3.9 per cent. in 129 simple cases. No two series are run on exactly similar lines.

Cases excluded by one man will be reported by another. I believe that vitreous loss, however, is more frequent in any form of extraction in capsule, and I wish to lay emphasis on the fact that a number of the patients in the series here presented were operated on in this way.

An indispensable condition for success in intra-ocular operations is perfect anesthesia. It is rarely that even an inflamed eye cannot be rendered anesthetic by local methods, and complete anesthesia will eliminate many complications. We use one or two drops of 10 per cent. cocain solution, in addition to the three or four drops of 4 per cent., over a period of ten mi [illegible] or more. In restless and fearful patients a [illegible] with congested eyes, in [illegible] foreign bodies and the [illegible]

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

is not to be used, we inject the orbit with 1 or 2 c.c. of a 2 per cent. solution of procain and epinephrin.

Various exact directions for injecting the orbit are given in the books and articles on local anesthesia. I find that it is simpler and less painful to introduce a 3.75 cm. needle either at the outer or the inner canthus through the already cocainized conjunctiva. It is passed backward and slightly toward the center of the orbit for 3.75 cm., and an injection of 1 to 2 c.c. of procain-epinephrin is made. In special cases, the injection may be made both at the inner and the outer sides. Perfect anesthesia results. Superficial subconjunctival injections do not seem to be in my hands as effective, and may interfere with the field of operation.

In a case in which the orbital injection is not used in cataract extraction, the corneal flap is always lifted, and 4 per cent. cocain is dropped on the iris before iridectomy is performed. With lid injection and complete anesthesia, it rarely happens that the patient has difficulty in looking down. When it does occur, injection of the superior rectus with procain or a stitch through the muscle, will remedy it. The effects of lid injection pass off in an hour, the local anesthesia somewhat earlier. As Colonel Smith has so well pointed out, the discovery of some procedure by which the extra-ocular musculature can be paralyzed for a week after operation would be a boon to humanity.

I suppose we all have cases in which the wound opens and prolapse takes place during the forty-eight hours after operation, and even later. In my experience this usually occurs in women, and is often due to vomiting induced by purely psychic causes. We have been unable to eliminate this complication, although various methods have been tried. Morphin, while effective in some cases, undoubtedly induces nausea in a certain percentage of persons. The "nausea mixture" used at the Knapp Hospital is of some value. In some cases we have used successive doses of chloral and bromid, the night before operation, the morning of operation, and another that night. I believe this also helps, but the accident still is a dreaded one and one to be seriously considered.

I believe that the best protection is in suture of the wound. I need not go into the history of the suture of cataract wounds. It is fully discussed in the recently issued volumes of the Graefe-Saemisch handbook. Kalt's method of corneal suture seems to have been most used. Ellett has two excellent articles on it in the American literature. There are certain disadvantages in the corneal suture which are overcome, I believe, by the method used for the last few years by my colleague, Dr. Verhoeff, and described by him. A very small flap of conjunctiva is dissected at the upper limbus and laid over the cornea. In the denuded area and about a millimeter above the limbus, a bite is taken in the sclera with a fine double-armed suture. The needles are then passed through the small conjunctival flap, the thread is wet, and the loop is then laid on the cornea and sclera so as to offer the least obstruction to the corneal section. After the lens has been delivered, the threads are pulled through the flap, tightened and tied, and we have a mattress suture holding down the flap.

With lid injection and complete anesthesia, the technic of this suture is much less troublesome than it was previously, the principal objection to it being that it renders the corneal section somewhat more difficult. I take it that most of us do not like to be diverted in making our corneal section by having to avoid threads, however well placed. This difficulty may be avoided by not completing the stitch until after the corneal section has been made. The conjunctival flap is dissected, and the stitch placed in the sclera. The ends are then laid back over the patient's upper lid and forehead. Two needle holes are now made in the small conjunctival flap with a slightly larger needle. The corneal incision and iridectomy having been made, the threaded needles are passed through the holes in the flap already made for them; these holes are found without effort, on account of their size and the smallness of the flap. The needle eye and its loop of thread pass through without resistance. The needles and loop are now disposed at one side, the lens is extracted, the threads pulled tight, and the stitch tied. Once the thread is pulled tight, the surgeon has complete control of the eye. Remaining cortical material may then be milked out at one side of the stitch, the anterior chamber may be irrigated if desired, and the toilet of the wound completed.

That many eyes are saved by the suture I have no doubt. Of course, this modification of the stitch cannot be used in certain cases, such as a dislocated lens.

I do not wish to be understood as advocating the stitch in all cases of cataract extraction, any more than I would advocate the same operation for all cases. I believe, however, that in certain cases it is indispensable, and I wish to stress the fact that with lid injection and adequate anesthesia, it is easy to complete the stitch after the corneal section has been made. I have done it many times without accident.

REPORT OF CASES

Case 1 is a good demonstration of the efficacy of the stitch:

Case 1.—J. H., a woman, aged 74 years, was operated on in 1921. The operation was performed without incident in the early morning, and at the evening visit she was resting comfortably. During the night she had an uncontrollable attack of vomiting, and got rid of most of the vitreous, and the eyeball had to be enucleated. She then told me, for the first time, that she had been subject to attacks of vomiting all her life. In December, 1922, she decided to have her remaining eye operated on. A stitch was put in, and although she vomited slightly before leaving the table and again more vigorously after being put to bed, the wound held and healed perfectly.

Another case is also pertinent:

Case 2.—A woman, aged more than 70, who had recently arrived in this country, was led into my office. She showed as marked a degree of blepharospasm as I have ever seen. It had existed for years. She had entropion of both lower lids, there were marked trachomatous scars of the conjunctiva and corneas, and the corneas were markedly vascularized. It was possible to make an examination of the eyes only after prolonged cocainization and with the use of lid elevators. The right eye showed an immature cataract, and the left, a mature one. The entropion was relieved by operation, but the blepharospasm persisted. The slightest attempt on my part to separate the lids was always met by an intense contraction of the orbicularis. The eyes were very deep-set and the palpebral fissures were very narrow. It was not without qualms that I consented to remove the cataract. The lids were thoroughly injected, a canthotomy was performed, an orbital injection of procain given, and a stitch passed through the insertion of the superior rectus to bring the eye down and forward. The extraction proceeded without incident, although there was a continuous blepharospasm in the other eye. The wound healed well.

CONCLUSION

By using these aids, we can operate in the ordinary case of cataract extraction with much greater security, while in the difficult case the chances of ultimate success are much greater. Dislocated lenses may be removed with a nominal loss of vitreous, or with none at all.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARKAN AND DERBY

DR. W. H. WILMER, Washington, D. C.: Rupture of the wound in 10.8 per cent. of the cases is high. The prolapse of the iris in four cases, 1.6 per cent., is also rather high, especially as two of the operations were performed according to the Hess method. Hess himself, in 600 cases, had 0.66 per cent. of iris prolapse. I feel that the patients themselves and the want of necessary postoperative nursing were alone responsible for these high percentages. Four patients were discharged with considerable cortex. Irrigation of the anterior chamber, in addition to the operator's method of expression of the cortex, might have made this unnecessary. Acute infection in two cases, or 0.8 per cent., would be somewhat high in normal conditions, but not for the circumstances confronting Meller. Under the best modern conditions, there has been an almost complete elimination of acute infection of the wound. I have not had any infection of the wound since 1915. I agree with Dr. Barkan in his view that focal infection plays a relatively minor part in wound infection; but I do feel that it has a most important rôle in later endogenous infection; for instance, in the very annoying iridocyclitis, that sometimes occurs about the tenth day. As one's time of operative experience lengthens, in private practice fewer normal cataract cases present themselves and more one-eyed people with all sorts of complications come for advice and operation. In cases of this type, preliminary iridectomy has, I feel, a distinct place in modern ophthalmic surgery. There is no mechanical reason why Meller's operative methods should not give as large a percentage of 20/20+ vision as the various forms of intracapsular operations, provided there is a needling in every case that requires it. Meller's results are excellent, in view of the conditions under which the operations were performed. The number of cases in which the vitreous was lost was very small even for the best operative conditions, especially as he did not drug the subjects or attempt to paralyze the orbicularis. During the last three years, my own percentage of loss of vitreous is 8.33 per cent., but this occurred in a series of operations in which the complicated cases formed 47.2 per cent. of the whole, and in no case was a good result interfered with. With an opportunity for later discission of the capsule, and a careful correction of the refraction, the high visual percentage would have been even greater. And I express my admiration for Meller, this great "master of fate," and his successes. A fairly large operative experience over a space of a number of years makes me feel that the patient's best interests are conserved by the operator's following the particular line of technic that he has thoughtfully selected and patiently perfected.

DR. CHARLES MAGHY, San Francisco: The worst complication that follows a cataract extraction with loss of vitreous is infection, either in the lips of the wound, or as a panophthalmitis. A mattress suture placed in the sclera and conjunctiva, by firmly closing the incision, would prevent vitreous from occupying the lips of the wound. In this way, some of the cases of infection might be prevented. In the cases of endogenous infection, it matters little whether or not vitreous loss has taken place. The author states that the cases were unselected, and that approximately one quarter of the operations attempted by the Knapp method were successful. I should like to ask Dr. Derby whether it has been his experience that in the cases in which he had trouble in dislocating the lens, the patients were chiefly under 50 years of age. In my opinion, it is much easier to dislocate the lens in a man of 60 than in one fifteen or twenty years younger, as in the former we have to overcome the suspensory ligament, while in the latter we frequently have to consider an attachment of the lens to the hyaloid. Another factor that should be taken into consideration in choosing the method of extraction is the type of cataract, the intracapsular operation being better adapted to cases of immature or hypermature lens. It would appear from Case 2 that blepharospasm is best controlled by paralyzing the orbicularis muscle. I know of no method that will prevent psychic vomiting. At Moorfields Eye Hospital, during nearly five years' service, I saw very few cases of loss of vitreous that could be attributed to vomiting. By far the largest number of patients who lost vitreous did so at the time of operation, by squeezing the lids together. In some cases, however, there was prolapse of the iris, especially in cases of simple extraction. I feel that had the orbicularis muscle been paralyzed and the mattress suture employed, many of these patients would have had an uneventful recovery. If we are willing to admit that vitreous loss in cataract extractions, even when moderate in degree, is more frequently followed by prolapse of the iris, prolonged healing, impaired vision and even infection, than in the cases in which no loss takes place, and also that, in spite of taking every precaution, both before and after the operation, a certain proportion fail because of an inflammatory reaction that sets in from three to five weeks after the lens has been removed, under the guise of a plastic iritis, the statistics set forth, by the author, showing a vitreous loss in two cases out of seventy-two operations, a loss of approximately 2.5 per cent., should be sufficient evidence to warrant the adoption of paralyzing the orbicularis muscle and the use of the mattress suture.

DR. JOHN O. MCREYNOLDS, Dallas, Texas: I feel that this suture is a most valuable adjunct to the safety of cataract extraction. It may be considered under three heads: 1. Does it do any harm? 2. Does it do any good? 3. Can it be easily introduced? With reference to the first, in fully nine tenths of my cases I introduce the sutures, and never have I seen the slightest infection or distressing reaction following. I have sometimes allowed them to remain for a month after operation without producing the slightest disturbance. Can it do any good? It certainly can do a great deal of good in many ways. It insures the quickest possible union. It enables the patient to get up more safely on the following day, and thus helps to prevent postoperative mania. It also enables the patient to leave the hospital a week earlier than would otherwise be judicious. I would say that there is one objection to the mattress suture. It means four introductions of the needle instead of two, and the tying of a mattress suture causes more puckering than in the method of Barraquer. The procedure that I use is to make a moderately long conjunctival flap. If one makes it too long, it places the line of incision too high underneath the lid. I do not like to have the threads in my way during the extraction of the lens. I generally prefer to insert the sutures at a later stage, because I want the eye free of threads when making the incision and extracting the lens. The suture is introduced through the lower conjunctival flap from without inward, and then passed through the upper conjunctival flap from within outward. If one happens to have a broad flap, there is no objection to introducing an additional suture. When I have reason to apprehend vitreous loss, I introduce the sutures before the extraction of the lens.

DR. KASPAR PISCHEL, San Francisco: I should like to confirm the advantages of paralyzing the orbicularis muscle before cataract operations. I saw this method first three years ago at Axenfeld's clinic. He showed me the article by Rochat of Groningen, Holland, who had described this method as akinesia. Since then, it has become so popular abroad that when I was in Vienna last month akinesia was the routine preparation for all cataract operations at Dimmer's and Meller's clinics. For sutures I would suggest a material that will not scratch and will be absorbed in a few days. Such a material is furnished by rat-tail tendons. I have been using them for years in all conjunctival wounds.

DR. DORLAND SMITH, Bridgeport, Conn.: Statistics are always interesting, and often valuable, if we remember that there are many unavoidable sources of error and do not, therefore, take our statistics too seriously. The statistics presented in these papers offer a good illustration of this. The miserable conditions under which Meller had to operate seem to make his success the more remarkable, but there [illegible] rea[illegible]-tion to this which is apparent when we [illegible]
patients were grossly undernourished,
there must have been a predominance

we all know that a sunken eyeball is much less likely to lose vitreous and to develop iris prolapse or rupture of the wound than a prominent eyeball. This was an exceptionally favorable circumstance in this series of operations, and should be taken into consideration in measuring the value of the statistics. I cannot altogether agree with all of Dr. Barkan's conclusions. Of the many ways of successfully extracting cataract, Dr. Barkan has made an admirable report on one. But we must not forget the others, nor forget the fact that, however well a man may know and perform one operation, he will fail of his highest efficiency if he does not consider the possibilities of other methods of operation, or shuts his eyes to their advantages. I also want to repeat the plea made to the American Ophthalmological Society last year, that those of us who can do so with safety should make use of intracapsular methods, not in all cases, but in such cases and in only such cases as we can use them without more force than we have to use in the average von Graefe or Hess operation. And I believe that there are many such cases, if we take the trouble to learn how to pick them out.

Dr. W. B. Lancaster, Boston: Dr. Wilmer suggested that there are certain points in the operation at which different men will make different selections in formulating their technic. That is, there are several procedures that may, perhaps, be equally good. There are others, however, in which there is a great superiority in some one method. Irrigation is an important addition to the operation. The suture certainly comes under the heading of the class of procedure that some men will approve of and some men will not. It is decidedly to be rejected. It complicates and prolongs the operation, and adds comparatively little security. What does it protect against? It is said that it protects against prolapse of the vitreous. But that is a rather rare complication. I always use a large conjunctival flap, unless I make a mistake in making my incision. I do not mean extending far back, but a flap that extends all the way round. I start my incision in the conjunctiva and end it there, so that the whole wound is covered with conjunctiva. In that way I get such immediate closure that I tell the nurse to allow the patient to get up the first night, if there is any necessity; for example, any difficulty in voiding that requires getting out of bed. It gives me a great deal of satisfaction to hear that anesthesia is strongly approved, because for a long time I have been an ardent advocate of better anesthesia. I think that that is the most important advance we have made. I think that more troubles in cataract operation come from imperfect anesthesia than from all other causes combined. I use cocain instead of procain, and inject it under the conjunctiva and not into the orbit, except in exceptional cases. I made deep injection as a routine in a series of cases eight or ten years ago, but it did not seem to be necessary, so I gave it up in favor of superficial injection. It makes considerable difference where one makes the deep injection. Dr. Derby said that it did not matter whether it was the inner or the outer side of the eyeball. I have found that if we inject deeply into the orbit along the external rectus, we frequently paralyze the external rectus muscle so that the eye rotates toward the nose. This is awkward when one makes the conical incision. Then, in order to work on it, one has to rotate the eye outward with forceps. If one injects along the internal rectus, the eye will tend to rotate out. Furthermore, if one injects up and in so as to affect the superior and the internal recti, both, one does not have to tell the patient to look down; the eye rotates down itself and is much better under control. I do not make injection into the lids as a routine procedure. The profession should take into account another cause of prolapsed vitreous than the pressure of the orbicularis muscle, and that is, the pressure of the external ocular muscles. In some cases when the lids are held entirely away from the eyeball, but when the patient makes a squeezing motion, the eyeball recedes perceptibly into the orbit. In fact, many years ago Donders and others, studying the position of the eyeball in the orbit, showed that when the eye is closed, the eye recedes into the orbit.

Dr. Roderic O'Connor, San Francisco: The most important thing in cataract work is to know how the patient is going to behave when one comes to extraction, and I do not think one can know that unless one has done a preliminary operation of some kind. It is easy to think that patients are going to behave, but they fool one sometimes. I like a preliminary iridectomy, although in some cases I have performed a preliminary iridectomy according to Curran. In that way I get the effect of the Chandler operation and know what the patient is going to do. At the same time, I can regulate the size of the opening. I use an exceedingly useful precaution, and that is a stitch in the center of the upper lid, leaving an end 2 inches long. This helps a great deal as a tractor both in closing the lids and in the dressings. Another stitch I use below the cornea to keep the patient from looking down, thus lessening gaping of the wound. As to using a sharp knife, in my work in the Philippines I learned how to sharpen my own knives so that they really are sharp, and frequently I use the same knife for years. When time is important, a preparatory capsulotomy in the morning and extraction in the afternoon will allow one to finish the entire operation in a much shorter time than doing it all at once.

Dr. Andrew Timberman, Columbus, Ohio: We say that our ideals are reached; but have we an ideal in the cataract operation, and if so what is it? Are we to be satisfied with anything less than that ideal? If we were to put it to a vote we would all say that the ideal way to extract a cataract is in the capsule. It is only a question of whether it is safer to leave a part of the capsule in, or whether it is safer and better to extract the cataract in its capsule. I think the majority of us would say that the extraction not within the capsule for us today is the safer operation; but I voice the sentiment expressed here a few moments ago when I say that I think we shall have come to a sad day if the members of this profession and of this section give up the ideal of extracting the cataract within the capsule. We attempt with every device to make our operations safe, but I am quite certain we shall make a mistake if we do not pursue the different methods offered to us and try them—try to reach that perfection of technic which will prepare each one of us as members of our profession to do that operation, whether the operation according to Hess, as described in Dr. Derby's paper, whether the operation as done by Smith, or the operation performed by Barraquer.

Dr. W. H. Wilder, Chicago: Dr. Derby's paper is valuable because it brings to our attention a means of making the cataract extraction a safer procedure, whatever method of operation may be employed. I have used this method of controlling the action of the orbicularis for two years or more, ever since I heard of it from Van Lint of Holland, to whom I think the credit belongs for first introducing it. I have found it eminently satisfactory, and practice it as a routine measure. I also combine it with the method of deep anesthesia. I do not know that Gallemaertz first suggested that method, but he advocates it—injecting deeply with a hypodermic needle, 3.5 cm. long, from 1 to 2 c.c. of 2 per cent. procain solution around the ciliary ganglion. If it is placed along some of the straight muscles, it blocks them so that the patient is quite powerless to look down or up or sidewise, according to the muscle that is blocked. But I feel certain from my own experience that it is of distinct benefit and has helped me greatly. We all know how frequently there is loss of vitreous if the patient gets a chance—he needs only one chance, and that lasting but a fraction of a second—to squeeze down on the speculum. Blocking of the orbicularis muscle is of very distinct advantage, and any one who tries it (it is a simple procedure) will observe that the patient has very much less control of this muscle than he had before the injection.

Dr. William Zentmayer, Philadelphia: Occasionally after such injections, an embarrassing complication follows. When one uses the speculum, it may not hold very securely, and is apt to fall out.

Dr. Allen Greenwood, Boston: May I suggest that the proper placing of the sutures does not materially disturb the operative procedure. I have proved that to my own satisfaction. If one lays the threads to one side, one does not notice them again until one is ready to use them. Properly placed sutures also lessen the amount of postoperative astigmatism.

Dr. Hans Barkan, San Francisco: Dr. Smith spoke of the sunken eyeball. It is true that cases of that sort have a certain advantage; but when the eyeballs are too much sunken, they are a disadvantage. These sunken eyeballs are the kind found in patients who die of long continued malignant disease. The eyeballs are so far back that one can scarcely get the knife in and get the iridectomy forceps behind the lids. Dr. Lancaster spoke of the operation being called the Chandler operation. He is absolutely right. Chandler was the first man to do that type of operating. I called it the Hess operation in this particular paper because it is known as the Hess operation in the clinics of Europe where this work was done, and is called that to distinguish it from the complete iridectomies that Meller did. Dr. Lancaster also spoke of the use of the shovel being a part of the Hess operation, which is true; but it is not used in Vienna. During the last two years my brother and I have used the shovel, and it is amazing to see what a mass of cortex can be brought out by the Hess shovel. Statistics in the paper show that there was comparatively little vitreous lost, and I know that there was comparatively little squeezing, and that gives us a good deal of the vitreous loss. I think that the squeezing comes at the time we have the speculum in and when it comes out. If one operates without a speculum, with the assistant holding the lids with his thumbs, one has very little squeezing indeed. I think that with that precedure I could answer Dr. O'Connor's question as to how patients will behave. They will behave well, provided a speculum is not used.

Dr. George S. Derby, Boston: I am not sure that I have explained clearly how this suture is inserted. It gives a much firmer union than any additional stitch can give. We have all seen large conjunctival flaps, subsequent prolapse, and a bead of vitreous under the conjunctival flap. That cannot occur with this suture, which clamps the small conjunctival flap down on the sclera. In regard to Dr. Maghy's remarks about the dislocation of the lens in old and young people, I think Knapp brings out very thoroughly that it is easier to dislocate the lens in older people. We see a certain amount of faulty apposition of the wound surfaces when the mattress suture is not exactly put in place, but that all disappears by the second day. The astigmatism is decidedly less in these cases. In regard to what Dr. Lancaster said about not using sutures becauses he seldom sees the escape of vitreous, even if it happens very infrequently, I do think it is a great advantage to put in these sutures. Another advantage of putting in the sutures is that it is a preliminary procedure, and one can often tell from it how the patient will behave during the operation, and take subsequent precautions.

[Note.—See also letter by Lieut. Col. Henry Smith, under Correspondence, this issue.—Ed.]

Spread of Venereal Disease in Siam by Plural Marriages. —The system of plural marriages, combined with the simplicity of divorce that prevails in most Far Eastern countries, is beyond doubt one of the most important agents in the spread of these diseases. This can hardly be considered with a view to any change. It is hardly the province of a public health officer to dictate the matrimonial policy of a country. It would most certainly be highly impolitic to attempt so to do. Under existing conditions it is, of course, possible for an infected man to injure any number of virtuous females who, under a system of monogamy, would in all probability escape such injury. It must be admitted that the marital state of the better class Eastern female is, perhaps, considerably improved over that of years gone by. There is a growing tendency on the part of the more modern Eastern man to limit his number of wives and to accord them greater personal freedom than heretofore. The low class female is no better off than she was a thousand years ago, and she is extremely fortunate who, as the result of her physical attraction, becomes an unofficial member of the family of a wealthy and more or less considerate personage. As to the unmorality of the lower classes, suffice it to state that it will take considerable more time, money and energy than any of the existing social organizations are spending before the average native will be convinced of the error of his ways.—R. W. Mendelson: *Am. J. Pub. Health* **13**:828 (Oct.) 1923.

SOME OBSERVATIONS ON IRIDOTASIS IN THE TREATMENT OF GLAUCOMA *

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The number of methods of treatment of glaucoma seems to be proportionate to the number of theories advanced as to the causation of the condition.

Uncertain as is our present knowledge of the pathogenesis of this singular eye trouble that we call glaucoma, it is little wonder that in attacking it we aim at its most prominent feature, increased intraocular pressure.

We may feel that if we have by some means succeeded in reducing this increased pressure, even for a considerable period, we have restored the eye to a normal condition; but such an impression is in many instances far from the truth, as everyone with much experience must have observed.

The conditions that operated to bring about the increased intraocular pressure may insidiously continue to affect the eye, even if the pressure is lowered by operation, and may be manifested by changes in the lens, the uveal tract, optic nerve and retina that ultimately destroy the sight. Such miscarriage in our treatment is probably seen more frequently in cases of noncongestive or simple glaucoma than in those of congestive, or the acute type, whose tension has been successfully lowered by operation at an opportune time.

Nevertheless, the immediate danger that we seem called on to combat is the continued increased intraocular pressure, and at the present time our therapy seems to be most deeply concerned with its reduction. But our methods of examination are more or less uncertain, and often we cannot feel sure that increased intraocular pressure exists. Again, we often cannot say that a tonometric reading is normal or abnormal. What may be normal for the eye of one person may be abnormal for that of another. This applies to cases of noncongestive or chronic glaucoma, those of the congestive or acute type being in a class about which there would be no uncertainty as to the abnormality of the tension.

The congestive type of cases, according to our present views, present positive enough indication for operative interference, and in these there can be no doubt of the value of operations. We all recognize the debt owed to Von Graefe, De Wecker and other pioneers in the treatment of acute glaucoma by iridectomy. But in the noncongestive cases, the indications for operative treatment are not so clear, and more careful examination is frequently necessary to determine whether operation is the wisest procedure.

Careful observation and record of the intraocular pressure as determined by the tonometer, its variations after use of miotics or mild mydriatics, careful charting of the visual fields, study of the region around the blind spot to determine central or paracentral scotoma, etc., are all necessary in order to discover the early stages of a so-called simple glaucoma.

What will guide us in determining whether or not operative treatment should be employed in early cases of noncongestive glaucoma in which tension is at no time very high? This question has formed the subject of many interesting discussions by ophthalmologists.

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* Read before the Section on Ophthalmology [illegible] the [illegible] Annual Session of the [illegible] June, 1923.

We seem to be a little more ready with an answer in recent years, since the introduction of more accurate tests for tension, the more careful study of the changes in the visual fields, particularly those in the central fields, and the modern operations that seem to offer more hope of success in this class of cases than does the time honored iridectomy, which is so valuable in the acute congestive form. It is my practice to resort to operation if the continued and reasonable use of miotics fails to keep the tension well within normal limits, or fails to hold in check the contracting visual fields, even if the central vision is normal.

The purpose of this paper is not to discuss the general subject of glaucoma, or methods of examination to detect it, but to present the results of its treatment in a small number of cases, by a certain method of operation that I think has not been very generally tried out, in this country at least, largely, I suspect, because of a certain prejudice or rather a feeling that it defies some of our cherished traditions in regard to the vulnerability of the iris.

When we consider the great variety of operations that have been proposed and practiced with varying results for simple noncongestive glaucoma, we realize the uncertainty of our operative therapy and the fact that the ideal operation has not yet been devised. Iridectomy, so valuable in recent congestive cases with a shallow anterior chamber, fails frequently in the mild noncongestive cases, unless from imperfect technic or some accident a cystoid scar results.

The observation that low tension frequently followed after badly performed iridectomies in which part of the iris remained attached to the wound, thus resulting in a cystoid cicatrix, prompted certain operators, Schlösser,[1] Herbert,[2] Holth[3] and Borthen,[4] to endeavor to bring about incarceration of the iris in a wound at the limbus under proper antiseptic precautions and in such a way that the prolapsed iris would be subconjunctival.

All of these operators claimed to get good results with their methods. Holth claimed that in his first series of forty-five cases of iridencleisis, 85 per cent. had good drainage and normal tension, and in a later series of eighty-seven operations, he reported that there were no bad results, and 86 per cent. of successfully filtering scars.

Borthen[4] varied the operative technic of Holth by a method which he called iridotasis, in which he performed no iridotomy nor iridectomy, but merely placed a small part of the iris beneath a flap of the conjunctiva. With this method, he performed fifty operations and obtained excellent results so far as drainage was concerned. Later,[5] he described a slight change in technic, consisting chiefly in an enlargement of the conjunctival flap, and excision of a small piece of iris, not including the sphincter.

Borthen thinks that the slight traction on the iris as it is drawn into the wound tends to draw the iris away from the cornea at points distant from the incision, and thus frees the iridocorneal angle. This suggested the name iridotasis.

My interest was aroused in this procedure years ago by the favorable comments of Harrower[6] and Roy.[7] who have used it in cases of glaucoma, with marked success. Since then, I have made use of it in a number of cases, and must admit, in spite of the prejudice I had against it at first because of cherished pathologic opinions about the tenderness of the iris, that it is an operation of merit if properly performed, and, so far as my experience allows me to judge, is no more dangerous than any other operation for glaucoma, and not as dangerous as some.

TECHNIC

With slight differences, the technic that I employ is that described by Borthen. The same scrupulous antiseptic precautions are observed as in any operation in which the eyeball is entered.

Local anesthesia with 4 per cent. cocain solution is usually sufficient.

The conjunctiva is seized with small toothed forceps, high above the limbus and cut horizontally with Stevens scissors as in making the conjunctival flap for an Elliot trephining. The cut need not be made very long and should not extend too far down the sides; for a thick flap and one that will lie easily in place afterward without a suture is desired. With closed scissors as a dissector, or with a special blunt dissector, the middle portion only of the flap is separated from the sclera down to the limbus, which is easily reached. Care should be taken not to buttonhole the flap, and not to break up any more of the submucous tissue than is necessary to expose about 4 or 5 mm. of the limbus. The preparation of the flap differs from that described by Borthen, who prefers to make it narrower.

The limbus, having been reached, the eye is held downward with a fixation forceps by an assistant, while the operator, holding up the conjunctival flap with forceps so that he can see the place of entrance for his knife, passes the point of a keratome 1 mm. from the edge of the cornea into the anterior chamber only far enough to make an incision 4 mm. long. For this purpose, Borthen uses a special knife having a shoulder, so that it cannot penetrate beyond a certain point. The same precaution as to the direction of the keratome is to be observed as when making an iridectomy, only in this instance the knife does not enter the chamber very far, and in withdrawing it, the point of the knife should be turned forward toward the back of the cornea, so that the lens may not come in contact with it as the aqueous gushes out.

Through the small wound, with very delicate iris forceps, introduced closed, the iris is seized at its pupil margin and gently drawn into the wound, the operator making sure that its black, posterior pigment layer surface is exposed to view; in other words, that portion of the iris is turned over.

In order to insure this, if the iris prolapses on withdrawal of the knife, it may be replaced gently with an iris spatula so that it can be seized exactly at the pupil margin, and then brought out as desired. The iris must not be pulled too strongly with the idea of getting a large prolapse, as this will make such a small pupil that it may be covered by the eyelid.

If the cut is too long, the iris may slip back, but this is not likely to happen with a 4 or 5 mm. opening. Borthen recommends the use of atropin before the operation, so that the paralysis of the sphincter iridis will prevent a contraction and replacement of the iris. I have not followed this plan, as the iris after employment of atropin becomes thicker; and it seems more difficult to make the incision and accurately to seize the iris.

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[1] Schlösser, in Elschnig: Augenarztliche Operations-Lehre **1**: 894, 1922.

[2] Herbert: Tr. Ophth. Soc. U. Kingdom **23**. 1903.

[3] Holth: Ann. d'ocul. **137** (May) 1907; **142** (July) 1909.

[4] Borthen: Arch. f. Augenh. **65**, 1909; **68**, 1911.

[5] Borthen: Arch. f. Augenh. **69**, 1911.

[6] Harrower, D.: Tr. Amer. Ophth. Soc., 1912; 1913; Arch. Ophth. **47**: 37 (Jan.) 1918.

[7] Roy, Dunbar: Ophth. Rec. **25**: 129 (March) 1916; Late Infection Following Iridotasis, Arch. Ophth. **47**: 42 (Jan.) 1918.

Immediately after the iris is properly in the wound, the conjunctival flap is replaced, and if properly made usually requires no sutures. If it shows a tendency to fall down, a small central suture will secure it.

Only the eye operated on is bandaged. Atropin is used the following day, and the patient allowed to sit up at the end of the second or third day. If the operation has been successful, more or less pronounced edema of the conjunctiva is observed when the eye is dressed on the day after the operation.

In the cases reported herewith in abstract, a careful study was made of the vision, fields, both central and peripheral, ranges of tension as shown by the Schiötz tonometer[8] before and after the use of miotics, appearance of optic disk, etc.

Unfortunately, it has been impossible to get recent reports, or to make recent examinations on all of the patients, and in some instances it has been necessary to take merely the report of the patient himself as to the condition of his eye.

REPORT OF CASES

Case 1.—*Single operation.* E. G., a woman, aged 27, seen, April 27, 1914, with right vision 20/15 +, left 0, tension, right, 22 mm., left 50 mm., suffered from congestive glaucoma of the left eye, secondary to uveitis. An iridotasis was performed, Nov. 15, 1915, on the left eye, with good results. Congestion had almost disappeared within twelve days after the operation. One month later, the tension went up to 47 mm., and there was a large bleb (due to improper draining away into the surrounding subconjunctival tissue) at the site of operation. Pilocarpin was ordered. When seen seven months later, the eye was quiet and tension normal. Seven years later, the tension was: right, 22 mm., left, 24 mm.

Case 2.—*Double operation.* P. Z., a woman, aged 55, seen, Nov. 27, 1915, had a congestive glaucoma of each eye. Vision was: right, 20/50, left, 20/100; tension, right, 15, left, 70 (a few days later, right 55). Iridotasis was performed on the left eye, November 29, with good result. A few days later, right vision was reduced and tension was very high. A posterior sclerotomy was performed on the right eye, December 6, and two weeks later an iridotasis was performed, with good results. Three months later, the right vision was 20/40, tension, 20 mm.; the left vision was 20/30, and tension, 25 mm.

Case 3.—*Single operation.* Dr. J. T. M., a man, aged [illegible], seen, Dec. 20, 1915, had a noncongestive glaucoma of the right eye. The sight was limited to perception of hand movements; the field was much contracted. Left vision was 20/20 —; tension, right, 62 mm., left, 27 mm. An iridotasis was performed on the right eye, December 27, with good result. One week later, the tension was from 15 to 18 mm.

Case 4.—*Single operation.* W. H. S., a woman, aged [illegible], first seen, March 29, 1907, was seen a second time, Feb. 2, 1917, this time with a congestive glaucoma of the right eye and a noncongestive of the left. The right vision was reduced to perception of fingers at 6 feet, the result, in part, of an old choroiditis. The left vision was 20/40, with moderate contraction of the fields. The tension was 90 mm., right. February 5, I trephined the right eye, and did an iridotasis on the left. Five weeks later, the tension was: right, [illegible] mm., left, 18 mm. Two years later, right tension was [illegible] mm., left, 15 mm. A recent report says the eyes do not bother her.

Case 5.—*Double operation.* J. L. W., a woman, aged [illegible], seen for the first time, Aug. 28, 1917, when the right vision was limited to perception of fingers at 6 inches, and left vision was 15/200, with field much contracted, and the tension in each eye was 45 mm., underwent a double iridotasis, September 3. The reaction was slight. Nine months after the operation, the tension was, right, 10 mm., left, [illegible] mm. The left iris had pulled out of the wound somewhat and a cataract had developed. No recent report has been received.

Case 6.—*Single operation.* F. A. H., a man, aged 62, seen, April 4, 1918, had a double noncongestive glaucoma. Vision was: right, 20/40, left, 0; tension, right, 23, left, 20. A few days later, right and left tension was 35. April 28, an iridotasis was done on the right eye with good results. The reaction was slight. Nearly five years later, the right vision was 20/50; the field was much contracted and tension was 30 mm. The nerve head was quite pale.

Case 7.—*Single operation.* M. P., a woman, aged 78, seen, May 24, 1918, whose condition was diagnosed double noncongestive glaucoma, was able to perceive hand movements with the right eye; with the left, fingers at 10 feet (cataract). Tension was: right, 60 mm., left, 28 mm. May 27, I did an iridotasis on the right eye, and an iridectomy on the left. The reaction was slight. Two years later, right and left tension was 15 mm. The cataract was removed from the left eye, after which the left vision was 20/200, vitreous opacities were present. A report in January, 1923, says the patient has no trouble with the right eye and still sees with the left.

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[8] Tension is that with the Schiötz tonometer unless otherwise stated.

Two weeks later, the left vision was 20/50, and tension, 19 mm. He has not reported since. A letter report, in April, 1923, says he still has fair vision and no trouble.

Case 14.—*Double operation.* E. R., a woman, aged 56, seen, Feb. 11, 1919, had a double congestive glaucoma, with vision in the right eye, 0; in the left, perception of fingers at 3 feet. Tension was: right, 60 mm., left, 65 mm. I did an iridotasis on each eye, Feb. 17, 1919, with good result, but slightly more reaction than usual. The tension remained normal and the vision of the left eye improved to 20/50. Ten months after operation, right vision was limited to the perception of shadows; left vision was 20/50. Tension was: right, 20 mm., left 15 mm.

Case 15.—*Double operation.* G. R., a woman, aged 64, seen, Sept. 13, 1919, had noncongestive glaucoma in each eye, had a vision in the right eye limited to perception of fingers at 2 feet, in a small island in the lower outer quadrant. Vision of the left eye, 20/30, with good field and the blind spot very slightly enlarged. Tension was: right, 47 mm., left, 27 mm. September 26, an iridotasis was done on the right eye with good result and slight reaction; but tension two months later was 40 mm. November 20, iridotasis was done on the left eye with good result, very little reaction, and tension, two weeks later, 15 mm. Three years later, the left field was still good, and tension remained low: right, 22 mm., left, 18 mm., but the central vision fell to 15/200, because of a cataract. This has not yet been removed.

Case 16.—*Double operation.* J. C., a man, aged 62, had a noncongestive glaucoma of each eye when seen, Nov. 10, 1919. The right vision was 0, the left, 20/50, and the fields were contracted. Tension was: right, 60 mm., left 44 mm. An iridotasis was done on each eye, Nov. 11, 1919, with good result, the reaction being slight. One week after operation, the tension was: right, 10 mm., left, 20 mm. Three weeks after operation, the right vision was limited to perception of light; left, 20/50. Tension each eye was 20 mm. Dr. Johnston of Portland, Ore., who referred the case, writes, March 23, 1923, that right vision is limited to perception of light; left vision is 20/40. Tension is: right, 11 mm., left, 13 mm., and is sometimes as low as 8 mm.

Case 17.—*Single operation.* J. W. B., a woman, first seen in 1905, at the age of 46, when she had absolute glaucoma of the right eye; tension, +3; vision, 0 (left, 20/30), six weeks later had the right eye enucleated. Fourteen years later, she returned with a noncongestive glaucoma of the left eye. The vision was 20/70, and tension, 50 to 55 mm. Six weeks later (Nov. 20, 1919), an iridotasis was done on the eye, with good result and slight reaction. The result was good for fifteen months, when a violent panophthalmitis developed, which she said started at the site of the iridotasis. It was of several days' duration when seen by me, and did not yield to treatment; evisceration was performed, enucleation being regarded as dangerous, and a specimen was not obtained. The infection was streptococcic.

Case 18.—*Single operation.* A. M., a woman, aged 64, seen, Nov. 3, 1919, had a noncongestive absolute glaucoma of the right eye. The vision was: right, 0; left, 20/70. Tension was: right, 60 mm., left, 20 mm. I did an iridotasis on the right eye, November 24, with good result, but considerable reaction. The tension was somewhat reduced. Six months later, the tension was: right, 40 mm., left, 24 mm. There has been no recent report.

Case 19.—*Double operation.* C. W., a woman, aged 49, had a noncongestive glaucoma of each eye. When seen, Nov. 20, 1919, the central vision was: right, 20/50, left, 20/70. Both fields were contracted, the left a little more than the right. The tension was: right, 60 mm., left, 80 mm. An iridotasis was done on the right eye, December 8, and on the left eye one week later. The result was good; the reaction, slight. Two weeks later, the tension was: right, 17 mm., left, 18 mm. In the right eye, the iris partly slipped back. Over three years after the operation, right vision is 20/40, left, 20/50; and tension is 12 mm. in each eye.

Case 20.—*Single operation.* N. M., a man, aged 60, whose condition was diagnosed acute congestive glaucoma of the right eye, Nov. 29, 1919, had a right vision limited to perception of hand movements, and a left vision of 20/20. Tension was: right, 70 mm., left, 17 mm. Dec. 11, 1919, iridotasis was performed on the right eye, with good result. The tension fell to 12 mm. after the operation. A letter received over three years later says that the tension has remained normal since the operation, and there is some vision (amount not stated). The left eye remains well.

Case 21.—*Double operation.* H. J. G., a man, aged 55, having double noncongestive glaucoma, was seen by me, Dec. 9, 1919, at which time the vision was: right, 20/30, left, 20/50, with the fields much contracted in each eye. The tension was: right, 60 mm., left, 65 mm. After the use of myotics, the right was 34 mm., the left, 35 mm. December 31, I did an iridotasis on the left eye, and a week later on the right eye. The result was good; the reaction, slight. One month after the operation, the tension was: right, 20 mm., left, 15 mm. The tension has remained low, and the fields have been fairly well retained. Three years after the operation, the right vision is 20/30; the right tension, 10 mm., the left, 22 mm.

Case 22.—*Single operation.* E. A., a woman, aged 67, seen, Jan. 14, 1920, had a noncongestive glaucoma of the left eye. Vision was: right, 20/30, left, 15/200, with the left field much contracted. The tension was: right, 18 mm., left, 47 mm., which was reduced by myotics to 30 mm. January 26, I did an iridotasis on the left eye. The reaction was slight; the result, good. Tension became normal. Five months later, the left vision was 20/200. Since then, because of lenticular haze, the vision has fallen to perception of fingers at 8 feet. The tension remains low: right, 15 mm., left, 16 mm.

Case 23.—*Single operation.* E. J. W., a man, aged 64, seen, Feb. 24, 1920, had a noncongestive glaucoma of each eye. At that time, the vision was: right, 20/40. The fields of each eye were contracted. Tension was: right, 42 mm., left, 45 mm. An iridotasis was done on the right eye, March 25, with good result. Tension became normal. Two months later, right vision was 20/30, left, 20/30; tension, right, 14 mm., left, 45 mm. June 28, I did a trephining of the left eye. Tension became quite low (8 mm.), persisting so for some time. Over three years later, April 9, 1923, a letter from Dr. C. E. Smith of DeKalb says that the right vision is 15/50, the left, 15/30; the right tension, 13 mm., the left, 6 mm.

Case 24.—*Single operation.* E. G. B., a man, aged 40, who had a myopia of 10 diopters, a posterior staphyloma, rather advanced choroidal changes and a congestive glaucoma, was seen, April 2, 1920. The vision was: right, 11/200, with the field half its normal size, and the blind spot twice its normal size; left, 0 (due to an old metastatic (?) choroiditis). The tension was: right, 50 mm., left, 20 mm. April 13, an iridotasis was done on the right eye. The result was good; the reaction very slight. Four months later, the tension was 17 mm. At this time the left eye was enucleated. Eighteen months after iridotasis, the eye was unchanged. The tension was 22 mm. Thirty months after operation, there was still no change.

Case 25.—*Single operation.* J. S. A., a man, aged 47, whose condition was diagnosed as double noncongestive glaucoma, was seen, May 11, 1920, with a right vision of 20/50, left, 20/50. The fields were moderately contracted, the left more than the right. Tension, right and left, was 57 mm. each. June 7, an iridotasis was done on the left eye, with good results. The tension became normal and remained from 17 to 20 till the patient was last seen, two and one-half years later. The right eye was trephined, September 17, and its tension came down and has remained same as the left. When the patient was last seen, in January, 1923, the right vision was 20/40, the left, 20/50; tension, right, 18 mm., left, 18 mm.

Case 26.—*Single operation.* I. R., a man, aged 58, whose condition was diagnosed as right congestive glaucoma and left anophthalmos (old absolute glaucoma), and whose vision was 20/100 and tension 47 mm., when seen, July 27, 1920, underwent iridotasis, August 25. The result was good, the reaction very slight; but gradually, although the tension has never been above 17 or 18 mm. in the last two and one-half years, the vision has fallen to 15/200. Feb. 24, 1923, the tension was 17 mm.

Case 27.—*Double operation.* J. A. L., a woman, aged 62, with double noncongestive glaucoma, Sept. 30, 1920, had a right vision of 2/200, left, 20/30; tension, right, 40 mm., left, 35 mm. October 19, an iridotasis was done on the right eye, and three days later on the left. In each case, the result was good, and reaction very slight. Two weeks later, the tension was: right, 14 mm., left, 12 mm. Three months after operation, the right vision was 2/200, the left, 20/30; tension, right, 16 mm., left, 14 mm.

Case 28.—*Double operation.* G. S. S., a man, aged 65, who had double noncongestive glaucoma, when seen, Jan. 18, 1921, with a right vision of 20/20, left, 20/70, with right field contracted and left field much contracted, and tension, right, 31 mm., left, 33 mm., underwent iridotasis of the left eye, January 22. The iris was fragile, and some blood escaped into the anterior chamber. The eye cleared quickly and vision soon returned to 20/20. Two years later, vision was 20/40, and tension, 15 mm. Dec. 12, 1921, an iridotasis was done on the right eye, and a similar fragile iris was found and blood oozed into anterior chamber. One month later, the eye was cleared, and the vision was 20/20; the tension, 24 mm. Three months later, this tension went up to 40 mm., and an iridectomy was done. One year later, the right vision was 20/30, and tension, 19 mm.

Case 29.—*Double operation.* G. E. P., a man, aged 54, with a double noncongestive glaucoma, who was seen, Feb. 10, 1921, had a right vision of 20/50, left, 20/30. There was a scotoma coming very close to the fixation point in each eye. Tension was: right, 38 mm., left, 40 mm. Iridotasis was done on the right eye, February 14, and on the left, four days later. The result in the right eye was good, and in the left eye, good, except for some blood which escaped into the anterior chamber. This was absorbed in ten days, but there was slight reaction during this time. One month later, the right vision was 20/40, left, 20/40 +. Tension on the right was 15 mm., the left, 22 mm. Fifteen months later, the right vision was 20/50, the left, 20/50 —; the tension, left and right, 10 mm.

Case 30.—*Single operation.* J. J. D., a man, aged 51, had a double noncongestive glaucoma. The right eye had been operated on (iridectomy) three years before. Feb. 13, 1922, the right vision was limited to perception of light only, the left was 20/40, with the field much contracted. Tension was: right, 47 mm., left, 55 mm. April 18, an iridotasis was done on the left eye, with good result, and very slight reaction. Three weeks later, the right tension was 26 mm. (pilocarpin pushed). The left tension was 10 mm.; left vision, 20/50 —. Ten months later, the left vision was 20/70, and tension normal, 18 mm.

Case 31.—*Single operation.* D. E. R., a man, aged 63, who had a double noncongestive glaucoma (previous iridectomy of the left eye, in March, 1922), was first seen, May 5, 1922. Vision was: right, 20/15, left, 20/200; tension, right, 45, left, 53. May 9, I trephined the left eye, with good result, and two weeks later, performed an iridotasis on the right eye, with good result and very slight reaction. One month later, the right vision was 20/15, the left, 20/120; tension, right, 20 mm., left, 15 mm. Six months later, the tension remained normal in each eye.

Case 32.—*Single operation.* W. H. S., a man, aged 71, seen, Dec. 5, 1921, with left noncongestive glaucoma, had no vision in the right eye, from optic atrophy. Vision in the left eye was limited to hand movements in the temporal field only. Tension was: right, 25 mm., left, 44 mm. May 11, 1922, an iridotasis was done on the left eye. The conjunctival flap was thin, and in healing lay quite flat; but gave good drainage, with slight reaction. One month later, tension was: right, 26 mm., left, 24 mm. There is no late report.

Case 33.—*Double operation.* S. B. P., a woman, aged 61, had a double noncongestive glaucoma (absolute in the right eye). Vision, May 16, 1922, was: right, perception of fingers at 6 inches; left, 20/20 —. Tension was: right, 40 mm., left, from 25 to 27 mm. May 26, iridotasis was done on the left eye, and, June 5, on the right eye, with good result and slight reaction. One week later, the right vision was limited to perception of fingers at 6 inches; left vision was 20/30 —. Tension was: right, 12 mm., left, 13 mm. August 31, a report from Dr. Dorsey, Wichita, says that the right vision is limited to perception of light; tension is 35 mm. (McLean); left vision is 20/30; tension, 25 mm. (McLean).

Case 34.—*Single operation.* T. D., a woman, aged 66, seen, July 29, 1920, with double noncongestive glaucoma, had a right vision of 20/30, with field contracted; left, 20/120, and field much contracted. Tension was: right, 30 mm., left, 40 mm. Oct. 31, 1922, an iridotasis was done on the left eye, with good result and slight reaction. Tension fell to 17 mm., and subsequently (six months later) to 12 mm. Vision also fell to 8/200. The right eye has remained unchanged. March 10, 1923, the right tension was 26 mm., left, 11 mm.

Case 35.—*Single operation.* G. E. R., a man, aged 61, who had a double congestive glaucoma, Dec. 1, 1922, perceived light at times with the right eye. The left vision was 0. Tension in each eye was 100 mm. Dec. 4, iridotasis of the right and iridectomy of the left eye were performed with good result. The right eye cleared more quickly than the left, but a month later the tension in the right was 45 mm., in the left, 85 mm. Jan. 3, 1923, the right eye was trephined and the left eye enucleated.

Case 36.—*Single operation.* N. F., a man, aged 59, had a noncongestive glaucoma of left eye, Dec. 1, 1922, the right vision was limited to light perception (old adherent leukoma due to penetrating injury many years before). The left vision was 20/30, with a large Seidel scotoma, but a good field. Tension was: right, 18 mm.; left, 60 mm. Jan. 1, 1923, iridotasis done on the left eye, with good result, and not much reaction. For a short time after the operation, there was a rather large choroidal detachment. This replaced itself in two weeks, at which time vision was 20/50, and tension, 15 mm. Three months later, a letter from Dr. Hornbogen says that the tension remains low.

SUMMARY

In this series of thirty-six cases, iridotasis was performed forty-eight times, twelve of the patients having had operations on both eyes.

Congestive Cases.—Ten of these operations were done for acute congestive glaucoma, and in seven of these the reaction following was slight, and the tension was reduced to normal.

The two operations in Case 14 were followed by some reaction, but the tension was reduced and was still normal ten months afterward.

In Case 35, a severe congestive type in an eye blind for over a month, and with a tension of 100 mm., the reaction was not as severe as in the fellow eye, also blind with high tension, on which an iridectomy was done. The tension of the eye undergoing iridotasis was reduced to 45 mm. A later trephining brought it to normal, but with no return of vision.

Tension had remained normal when last observed or heard from seven years after operation in one case; three years after in one; two and one half years in one; from ten to fourteen months in three; from three to four months in three; total, 9. Tension was not reduced in one case.

Noncongestive Cases.—Thirty-eight of the operations were done for chronic or noncongestive glaucoma, and in all of these except Case 18, the reaction following the operation was slight. In all of them the healing was uneventful, and the tension was reduced to normal or below.

In Case 18, an absolute glaucoma of the right eye, the tension was temporarily reduced [illegible] six months later was 40 mm.

In Case 28, the tension was reduced and remained normal for one month. Three months later, the tension again rose to 40 mm., and iridectomy was done, since which time tension has remained normal.

Following four operations, there seemed to be hypotony in Cases 29 (double), 34 and 36, the tension becoming as low as 10 mm. and 11 mm.

In Case 36, the tension was not measured with the tonometer, but it seemed low by palpation, and there was detachment of the choroid, which was replaced one week after the operation. Late report says the eye is in good condition.

From reports received, there seems to be as yet no ill effects from the hypotomy noticed in the other cases.

Hypotony has persisted in one eye of Case 23, following trephining, tension at last report being 6 mm.

Tension had remained normal when last observed or heard from three years or over in seventeen cases; two years or over in three; one year or over in three; less than one year in twelve; total, 34.

Patient 17 developed panophthalmitis from probable streptococcus infection fifteen months after a successful operation, and neglected coming from the country to the hospital. All attempts to save the eye were futile, and it had to be eviscerated. The infection had apparently entered the eye through the old wound.

COMMENT

After forty-eight operations, tension was reduced for a varying time in forty-four, about 90 per cent. As to the permanence of the result, it is impossible to draw any conclusions, for the cases are not always available for further study, and reports received are frequently misleading. The patient may have poorer vision or may be blind, and still the eye may be draining well. He may still have fair vision and the tension may be increased.

When we reflect how varying are the conditions that may be present in cases of glaucoma, we appreciate how difficult it is to arrive at fair and logical conclusions as to the merits of any operation for its relief, even if we have numbers of operations, done by the same operator.

No definite standards of efficiency have ever been set for such operations, and possibly with our present knowledge cannot be. Speaking generally, ophthalmologists are probably agreed that any operation for this condition should be able to reduce the intraocular pressure to normal limits, should be reasonably simple so that the ordinarily skilful surgeon could perform it, and should expose the eye to the least possible immediate or remote danger.

It seems to me that the simplicity and ease of performance of this operation will be unquestioned by any operator who takes time to practice it. The only difficult step is the opening of the anterior chamber, which is by no means as difficult as that necessary in an ordinary iridectomy, a La Grange sclerectomy, or a trephining. The incision is so small that it is little more than a paracentesis, but it must be made with the utmost care.

As to its ability to bring about drainage of the anterior chamber, I think the accumulated experience of the men who have tried it will show that it is not lacking. Whether this drainage results from the drawing away of the root of the iris from the filtration angle, as Borthen maintains, or whether the prolapsed iris acts as a living seton along which the aqueous can escape into the subconjunctival cellular tissue are questions which await further study and solution. The study by Verhoeff[9] of an eye enucleated after iridotasis seems to show the necessity or wisdom of drawing out the iris sufficiently so that its sphincter will be out of the wound and there will be no likelihood of the anterior surface of the iris attaching to the anterior lip of the corneal wound. Such an adhesion would check the drainage desired.

As to the danger of this operation, either immediate or remote, continued experience will have to determine this.

Certainly, the immediate danger is small. The iris is not wounded, and for this reason there is less liability of hemorrhage than in any of the operations in which it is cut. This is a very important consideration in cases of hemorrhagic glaucoma, or in cases with high blood pressure, in which the iris vessels may be very fragile, as I found in some of my cases, Case 9 particularly. There is less danger of injuring the ciliary body than in trephining, cyclodialysis, or any of the sclerectomies.

The usual results observed, absence of pain, prompt reduction of tension, rapid recovery from the operation, with such very slight reaction (certainly in my experience less than that following other operations) all speak for a minimum of traumatism of the eye, compared to most other operations devised for the same purpose.

As to the remote dangers, I think many, like myself, at first hesitate to use it because of a traditional reverence for the iris and a feeling that its incarceration may spell disaster. Further experience and pathologic examination will enlighten us on this point. Late infection may occur after any operation in which the eyeball is entered.

If I were asked my preference in congestive glaucoma, I should say iridectomy, although iridotasis has served well in numbers of cases. In noncongestive cases, I can say that I think this operation has given me on the whole as good results as trephining or any of the sclerectomies, including La Grange or cyclodialysis. In certain cases, I think I should say I preferred it: viz., in those in which there is high blood pressure with indications of atheromatous blood vessels, in which there would be reason to fear that the iris vessels might be very fragile and would bleed easily with any iris cutting operation; and again in cases in which a previously performed iridectomy, trephining or La Grange operation had failed to accomplish the desired result.

It seems to me it should not be used in an eye that has a developing cataract, for the misplaced pupil and iris would add to the difficulty of the incision should a subsequent extraction be necessary.

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[9] Verhoeff: Histological Findings after Iridotasis, Arch. Ophthalmol. 45: 5, 1916.

Whole Time Local Health Officer.—The fundamental need is not for the development of numerous specialties, to be introduced into local communities independently, but for the establishment of an efficient, whole-time local health service through which the measures necessary for the benefit and protection of the public health may be conducted in logical sequence and in proper relation to one another. Until such a single definite program of local, state and federal health work is generally recognized and adopted, different agencies will continue to work at cross purposes, appropriating bodies will lack confidence and withhold support, the medical profession will be subject to constant irritation from many sources, and the general public will remain confused and skeptical.—W. S. Draper: *Public Health Rep.* 38:2717 (Nov. 16) 1923.

INSULIN IN DIABETIC COMA, COMPLICATING PREGNANCY *

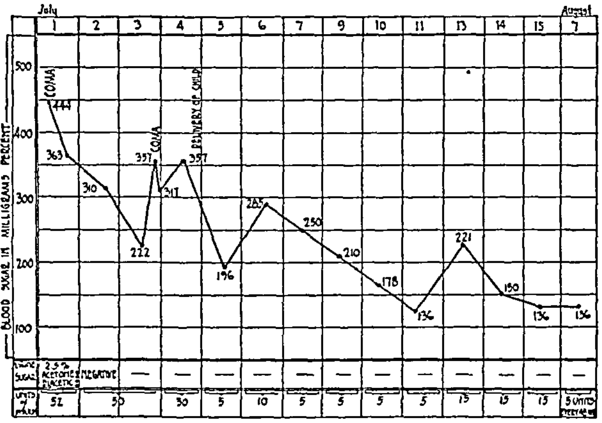
WILLIAM S. REVENO, M.D.
DETROIT

The efficacy of insulin as an antidote for diabetic coma has been sufficiently well established to prompt Joslin[1] to state that "deaths from diabetic coma are unnecessary accidents that can be avoided by sensible treatment. If the patients die from coma at the present time, it is a disgrace to the medical profession."

While the literature abounds in reports of cases of diabetic coma complicating various conditions, no instance has been found in which a well advanced pregnancy has had to be reckoned with along with the coma. The case here reported is of interest, therefore, because it deals with just this sort of situation.

REPORT OF CASE

Mrs. E. F., aged 42, Syrian, housewife, mother of five children, was brought into Providence Hospital, June 30, at 11 p. m., in a semicomatose condition. Her temperature was 97.4, the pulse was very weak and thready, with a rate of 100, and respirations were rapid, shallow and difficult. The *family history was negative.* The patient had always been well and able to conduct her household duties until two years before, when she began to feel weak and lost weight very rapidly. She had four or five miscarriages at two to three months during the year previous and the year following the onset of her trouble. A physician whom she consulted at this time informed her that she was suffering from diabetes, but she failed to take his verdict seriously and so neglected treatment, with the result that she had been gradually losing in strength and body weight. She became pregnant again in November, 1922, and was feeling quite comfortable without any untoward symptoms—and still without treatment—until three days before her entrance into the hospital. At this time she began to feel drowsy, her thoughts were confused, and she had considerable difficulty in respiration. This condition continued unabated until seen by her physician, Dr. R. L. Fellers, June 30, when dyspnea was so marked and acidosis so evident that she was immediately sent to the hospital.



Progress of case.

I saw the patient at 8:30 a. m., July 1. She was comatose, her breathing was distinctly of the Kussmaul type, and her breath reeked of acetone. Emaciation was marked. The temperature was 95 and the pulse 110, weak and thready. The pupils were dilated, and reacted sluggishly to light. The mucous membrane of the mouth was parched, the teeth were covered with sordes, and the throat was reddened and dry. The chest was narrow; there was marked muscular atrophy, and the skin was wrinkled and parchment-like. The respiratory excursions were very shallow. There was fairly good resonance throughout. The heart was not enlarged or displaced, and the apex beat was barely palpable. Auscultation revealed no adventitious pulmonary sounds; the heart sounds were faint and rapid. No murmurs were heard. The systolic blood pressure was 108, the diastolic, 80. The abdomen was enlarged to the size of a thirty-six weeks' pregnancy; the fetus was in the right position, floating; the cervix was undilated, and the presentation was breech. Fetal movements or heart sounds could not be made out. The obstetric examination was made by Dr. Walter E. Welz.

Glucose and sodium bicarbonate in 5 per cent. solution was immediately started by rectum, and 2 units of insulin, as a desensitizing dose, was given. A blood sugar estimation at this time showed 0.444 per cent. The urine was positive for acetone and diacetic acid, and contained 2.5 per cent. sugar. At 9:10 a. m., 10 units of insulin was given intravenously. This was repeated in an hour, and again at the end of another hour. The patient had so far shown no response. A blood sugar determination taken at 11:45 a. m. showed 0.363 per cent. Accordingly, at 12:20 p. m., 20 units of insulin was given intravenously. Within ten minutes the patient began to show a marked improvement in pulse and respiration, and by 1 p. m. regained consciousness sufficiently to ask for a drink of water. She had received in all 52 units of insulin before she was brought out of coma. She was now put on 5 unit doses subcutaneously at hourly intervals, and received eleven such doses. Sodium bicarbonate in 30 grain (2 gram) doses was given every three hours, and fluids were given ad libitum. She had a rather restless night, but remained conscious throughout, sleeping at short intervals. At 9:30 a. m. the following day, the blood sugar was 0.310 per cent. She was given 25 units of insulin because she still showed slight air hunger, was very restless, and her breath had a marked acetone odor. Within an hour the patient quieted down, but only for a short while, when she again began to manifest respiratory difficulty. The temperature was still subnormal and the pulse was still rapid, weak and thready. Insulin in 5 unit hourly doses subcutaneously was again started, and by the time she had received 30 units, her respiratory embarrassment had ceased and her general condition was decidedly improved so that the interval between doses was lengthened to five hours. Since the patient manifested some signs of hunger, she was placed on a 1,000 calory diet made up according to the high fat, low protein, low carbohydrate principle set forth by Newburgh and Marsh.[2] She had a fairly comfortable night, but toward morning she became restless again. The blood sugar at 9:30 a. m. was 0.2222 per cent. The urine was negative for sugar, but showed a trace of diacetic acid. Breakfast was refused. The patient was very restless, and by 11:30 a. m. relapsed into a comatose state. She was given 30 units of insulin intravenously, and by 3 p. m. had regained consciousness. The blood sugar immediately preceding the administration of the insulin was 0.357 per cent., and within an hour after consciousness was regained it was down to 0.317 per cent. The systolic blood pressure at this time was 98, and the diastolic, 86. She took her evening meal with apparent relish and rested fairly comfortably until about midnight, when she began to have typical labor pains at twenty minute intervals. These continued until 4:35 a. m., when the interval between pains decreased to five minutes. The patient was immediately transferred to the obstetric department. From 4 p. m. of the day previous until 5 a. m., July 4, she had received 50 units of insulin subcutaneously (given in 5 to 10 unit doses at periods of from two to three hours). Despite this almost constant administration of the insulin, the blood sugar this morning was 0.357 per cent. The urine, however, was negative for sugar, acetone and diacetic acid. Insulin was now given in 10 unit doses at hourly intervals until delivery of a living premature female child was made at 3:20 p. m. (The child died at the end of sixteen hours. No necropsy was performed.) The patient was very restless until about 10:30 that evening, when she quieted down and fell asleep. The insulin was given in 10 unit doses at four hour intervals until 6:30 a. m. The blood sugar at 8 a. m. was 0.1968 per cent. Only 5 units of insulin was given before the noon meal, July 5. The condition of the patient on this day was the best that it had been since her entrance into the hospital. Urinalysis was negative for sugar.

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* Read before the Highland Park Physicians' Society, Oct. 4, 1923.

[1] Joslin, E. P.: Insulin in the Routine Treatment of Diabetes, discussion at meeting of Association of American Physicians, May, 1923, abst. J. A. M. A. 80: 1726 (June 9) 1923.

[2] Newburgh, L. H., and Marsh, P. L.: [illegible]se o[illegible] [illegible]h Fat Diet in the Treatment of Diabetes Mellit[illegible] [illegible]t. [illegible]: 647 (Dec.) 1920.

The blood sugar on the following morning, July 6, was 0.2857 per cent., but the urine showed no reduction with Fehling's or Benedict's solution. Ten units of insulin was given one-half hour before breakfast. This day showed still more improvement. July 7, the blood sugar being down to 0.250 per cent. and the urine still sugar-free, only 5 units of insulin was given, one-half hour before breakfast. The patient was put on a 1,400 calory diet based on the same principle as previously mentioned. Improvement continued unabated. The circulation was markedly improved. The patient was in excellent spirits. The same treatment was continued, July 8. July 9, the blood sugar was down to 0.210 per cent.; on the morning of the 10th, 0.178 per cent., and on the 11th, 0.136 per cent. The diet was increased to 1,800 calories a day, and the patient continued to improve in every way. She was gaining in weight, rested well, and was very comfortable at all times. On the morning of the 13th the blood sugar rose to 0.221 per cent., and dosage of insulin was increased to 15 units for the day. This brought the blood sugar down by the following morning to 0.150 per cent., and on the day she left the hospital the blood sugar was 0.136 per cent. on a dosage of 15 units in 5 unit doses given half an hour before each meal. The urine remained negative throughout. The blood sugar, August 7, was 0.136 per cent. The urine was negative for sugar. At this time she was receiving 5 units of insulin every other day.

COMMENT

While this case presents several points of interest, the most important is the question as to the cause of the severity of the symptoms previous to delivery as compared to the sudden change for the better immediately following parturition. In this respect it may be said that the abrupt change simulated very closely the response of a patient suffering from one of the toxemias of pregnancy to either therapeutic or spontaneous abortion. Whether or not the presence of the fetus had anything to do with the maintenance of the blood sugar at a high level is a question to be decided only by the reaction of the patient and her behavior subsequent to delivery. Incidental or not, parturition marked the turning point in the progress of this case to a successful termination.

There is one "lead" to be followed through, however, and that is the presence of a comparatively high renal threshold, as evidenced by the absence of sugar in the urine even when the blood sugar was as high as 0.357 per cent. One might easily incline toward the existence of a concomitant renal involvement, despite the lack of elevation of the blood pressure, yet substantiated somewhat by the presence of small amounts of albumin in the urine during the third and fourth days. The existence of this associated renal involvement may be assumed to have produced a toxemia of mild enough type to be masked by the more urgent condition, yet of sufficient severity to account for the failure of the relatively large quantity of insulin administered before delivery to depress the blood sugar and to relieve the patient completely of air hunger and acidosis. Further evidence which might throw added light on this problem not being available, this question must necessarily stand unsolved.

However, the fact remains that, despite the comparative recency of the discovery of insulin, its value to diabetic patients, particularly when moribund, has been proved beyond the least vestige of doubt.

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TROPICAL SPRUE

A CRITICAL STUDY OF CASES [*]

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Of forty-five cases of tropical sprue occurring in India, Leonard Rogers [1] reports a probable cure in only one, and no material improvement in twenty-six. Tropical sprue may be considered, therefore, a very serious nutritional and diarrheal disease. Nearly all the patients seen in the New York district have acquired and developed the disease in some foreign country where sprue abounds. But in the last ten years, many cases have been reported as originating in our Southern states, and a number of cases have developed in persons who had left a sprue district apparently well and had not shown symptoms of the disease until from a few months to many years after residence in a northern region supposedly free from sprue. DeLue [2] mentions the development of a case near Boston, but his description makes the diagnosis doubtful. One patient developed the disease in New Hampshire, but this patient had lived in North Carolina twenty-five years before, and had visited Florida once since.[3] Bovaird [4] mentioned a patient who, after leaving Porto Rico, had lived under highly favorable conditions on Long Island for two years before developing the disease. He recorded two other cases in which the patients had first noticed symptoms four months after their return to the United States. Bahr [5] reports a case that was seven years in developing, after the return of the patient to England, and Thin [6] reports a case that developed seventeen years after the patient's return to England. Moreover, a few of the patients with sprue come directly to us from sprue countries with the condition not diagnosed. It would seem, then, that some knowledge of sprue cases may be of considerable importance in this country, even to northern physicians.

Sprue is mostly insidious in its onset, often beginning with a slight occasional diarrhea in several successive seasons or years, and with later a sore mouth either accompanying the diarrhea or in the interim between diarrheal attacks. A recurring diarrhea of undiscoverable cause, with the gradual development of anemia and loss of flesh and strength, must be considered suspicious, even in the absence of sore mouth.

One of us (B.) has seen thirteen cases in New York, one from the Philippines, three from China, one from Korea, one from Java, one from Cuba, one from Louisiana (the patient had formerly lived in Haiti), and five from Porto Rico. Four of these we had no opportunity to study, though we have the details of one, a fatal case with necropsy in Bovaird's series, reported by Barach and Murray.[7] We have not included this case in our series. In the other nine, there were four mild cases and five severe ones. Of the latter, two patients died and necropsies were performed, one is now cured, one returned to Porto Rico moderately improved and has been untraceable, and the remaining one is improving rapidly. Five of the patients came to us at about the same time last autumn, and gave us an opportunity to gain more data relating to the disease. In these five, we have made extensive mycologic studies.

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[*] Read before the New York Academy of Medicine, April 17, 1923, and the American Gastro-Enterological Association at Atlantic City, April 30, 1923.

1. Rogers, Leonard: Bowel Diseases in the Tropics, London, Oxford Medical Publications, 1921.

2. DeLue, F. S., in discussion on Bovaird, David: A Study of Tropical Sprue, or Psilosis, J. A. M. A. **77**: 758 (Sept. 3) 1921.

3. Wood, E. J.: Am. J. M. Sc. **110**: 692 (Nov.) 1915; Clinical Manifestations of Tropical Sprue, abstr., J. A. M. A. **70**: 1791 (June 8) 1918; The Recognition of Tropical Sprue in the United States, ibid. **73**: 165 (July 19) 1919; U. S. Naval M. Bull. **13**: 449 (July) 1919; J. Trop. Med. & Hyg. **23**: 201 (Aug. 16) 1920.

4. Bovaird (Footnote 2).

5. Bahr, P. H.: Tr. Soc. Trop. Med. & Hyg., London, 1914.

6. Thin, George: Psilosis or Sprue, London, J. and A. Churchill, 1897.

It is not our intention to discuss the whole picture of sprue. But in our knowledge of this disease there are some points about which authorities differ, and we will give our experience in these regards.

THE BLOOD

In the literature we find varying ideas regarding the red cells and hemoglobin, Stitt[8] and Wood,[3] for example, stating that there is a high hemoglobin index, Low[9] that the index is about 1, and Barker,[10] Rogers[1] and Bovaird[4] that the index is low and secondary anemia the rule. Among our cases, in five of the seven patients who lived, the blood was that of a secondary anemia. In one it was normal. In the other one who lived and still suffers from sprue, whose condition is shown in the accompanying illustration, the hemoglobin index in July, 1920, was 1.15, with hemoglobin, 46, moderate poikilocytosis and marked anisocytosis. Now, three years later, the hemoglobin is 88 and the red cells, 3,900,000, the index being 1.13, with practically no poikilocytosis or anisocytosis. In the two patients who died, the index was high, and the blood showed characteristics of the blood in pernicious anemia. One severe case began with hemoglobin of 45 and an index of 0.75, but with improvement to hemoglobin, 65, and an index of almost 1.

The white cells are generally described as showing a leukopenia with a low proportion of polymorphonuclears. In our series, only two cases showed this picture, one a fatal case; the other patient is now improving. The latter gave a count of 5,200, with polymorphonuclears 44 per cent. in 1920; 4,900 with polymorphonuclears 72 in 1921, and 9,200 with polymorphonuclears 36 at the beginning of this year. In one fatal case in which there was a high hemoglobin index, the leukocytes numbered 5,000, with polymorphonuclears 60 per cent. One severe case gave a count of 7,300, with 50 per cent. of polymorphonuclears, and the other five cases gave a polymorphonuclear percentage of from 60 to 72 and a count of from 6,000 to 7,300. Only one showed eosinophils, which were 3 per cent. Van der Scheer[11] found eosinophils (12 per cent.), unaccounted for otherwise, in only one of his thirty-three cases.

Rogers[1] remarks that a rapidly progressive pernicious anemia is a most serious complication, especially observed in patients beyond middle age; and it would seem probable that most of the high index figures with leukopenia and low polymorphonuclear count have been obtained from patients in this condition. But noteworthy in these cases is the absence of subcutaneous fat, which in ordinary cases of pernicious anemia is retained.

WASSERMANN REACTION

In all of Bovaird's thirteen cases and in five of ours that were tested, the Wassermann reaction was negative.

BLOOD PRESSURE

The blood pressure was regularly low, the systolic ranging between 80 and 110, and the diastolic between 52 and 80.

URINE

The most noteworthy finding in the urine was indican, which was present in all cases, whether the patients were having diarrhea or constipation. Several writers have mentioned the high indican content. Urobilin was reported by Manson-Bahr[12] and Rogers,[1] and was found by us three years ago in the patient still living, who had the pernicious anemia blood picture described heretofore, i. e., hemoglobin 46, and hemoglobin index 1.15. Now, with hemoglobin 88 and a hemoglobin index of 1.13, there is no urobilin in the urine. In the two patients with typical pernicious anemia, who died, the urine was negative for urobilin.

STOMACH CONTENTS

Wood[3] states that in sprue cases there is an absence of hydrochloric acid. In 1916, Brown[13] reported a case in which there was both gastric and pancreatic achylia, and later he reported two cases in which there was gastric anacidity, two in which there was subacidity, and one in which there was hyperacidity. In Bovaird's[4] cases, six showed anacidity, one subacidity, and six normal acidity. In thirty-three cases, Van der Scheer[11] found normal contents in twelve, hyperchlorhydria in one, hypochlorhydria in fourteen and achlorhydria in six. Pratt and Spooner's[14] patient had achylia.

We have records in eight of our cases. The six patients who lived showed one-hour acidities of 64/106, 66/80, 40/54, 40/56, 22/34, and one with a pernicious anemia blood picture, who had several test breakfasts in three years, showed gradual increase from 30/46 to 58/82. Of the two who died (both with pernicious anemia blood pictures), one gave 0/20 with rennet and pepsin both present, and the other 0/20, and later 0/9, with no rennet or prorennet at either test.

PANCREATIC FERMENTS

In five cases, Brown[13] reported pancreatic achylia in three, and some degree of pancreatic deficiency in the other two; and this, coming from one who is such an authority on the pancreatic ferments, had the effect of creating the impression that pancreatic achylia is usual and to be expected. His cases were all chronic and severe. He tested with great care for trypsin, amylase and lipase. Simon[15] tested three cases and found no pancreatic deficiency. Bovaird[4] reports trypsin absent in four, diminished in one, and normal in three, and amylase absent in one, diminished in two, and normal in four. He found trypsin without amylase and amylase without trypsin. In Pratt and Spooner's[14] case, trypsin was obtained from the duodenal contents and the feces, though other tests pointed to deficient pancreatic activity.

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[7] Barach, A. L., and Murray, H. A.: Tetany in a Case of Sprue, J. A. M. A. **74**: 786 (March 20) 1920.

[8] Stitt, E. R.: Diagnostics and Treatment of Tropical Diseases, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1922.

[9] Low, G. C., *in* Price's Practice of Medicine, Oxford, 1922.

[10] Barker, L. F.: Monographic Medicine, New York, D. Appleton & Co. **3**: 490, 1916.

[11] Van der Scheer, A., in Mense's Handbuch der Tropen Krankheiten, Ed. 2, **3**: 451-507, 1914.

[12] Manson-Bahr: Manson's Tropical Diseases, New York, William Wood & Co., 1921.

[13] Brown, T. R.: Bull. Johns Hopkins Hosp. **26**: 289 (Oct.) 1916; Am. J. Med. Sc. **161**: 501 (April) 1921.

[14] Pratt and Spooner: Tr. A. Am. Phys., 1912.

[15] Simon, S. K.: South. M. J. 55 (April) 1921.

In seven of our cases, trypsin tests were repeatedly made on the feces, and, in some cases, on the duodenal contents. In four, they were persistently strong, in one strong at first, later nearly absent, and recently strong again, in one slight and in one absent. In the patient who died, with 0/20 and 0/9 of acidities in the gastric contents, trypsin was persistently present in the stool and duodenal contents, even shortly before death. In the case in which there were the highest gastric acidities, trypsin was absent.[16]

BILE

Bile pigment in the stool was regularly present in our cases, as shown by Schmidt's [17] mercuric chlorid test. The duodenal contents showed ample bile in three cases, one shortly before the patient died. Wynter-Blyth,[18] Van der Scheer,[11] Hunter, Harley and Goodbody [19] and others have shown it to be present in the stool in the form of leuko-urobilin.

REACTION

The reaction of the stools was highly acid during the periods of highly fermentative diarrhea, but at other times, in some cases, was alkaline. This had no relation to the presence or absence of indican in the urine.

FAT

Fat in the stool is characteristic of the disease. A normal stool shows from 8 to 25 per cent. of fat in the dried feces.[20] Schmidt [17] says that 20 per cent. is the outside limit of normal for a patient not on an excessive fat diet. In eight sprue cases in which there was probable involvement of the pancreas, Cammidge [20] found from 39.8 to 76.1 per cent. of fat; and in five cases in which there was no suggestion of pancreatic involvement, he found from 34.3 to 57.7 per cent. In four patients, Bovaird [4] found the fat from 25 to 48 per cent.; in cases with absence of pancreatic ferments, Bahr [5] reported from 70 to 90 per cent., while in a case without pancreatic deficiency Pratt [21] found 59 per cent. In one case, Pratt and Spooner [14] reported a fat loss of 45 per cent. In one of our cases, in which the trypsin was much diminished, the total fat of the dried stool during a period of constipation and on a mixed diet with fruit and low fat content was 16.7 per cent. In another, the dried diarrheal stool showed 38 per cent. of fat. In a patient, who did not have sprue, whom necropsy proved to have an absolutely normal pancreas, Whipple [22] found 80 per cent. of fat in the stool.

In estimating the fat in the stools, both the frequency of the stools and the character and amount of the fat in the diet are factors of great importance. Diarrheal stools regularly contain a high fat percentage. In regard to diet, Gaultier [23] found that in a normal person on a diet containing 96 gm. of fat in the form of meat and bacon, 17.2 gm. was recovered from the feces, while on a milk diet containing 95.1 gm. of fat the amount recovered was only 3 gm. Schmidt and Strasburger [17] and also Harley and Goodbody [19] noted that, as the quantity of fat in the food increased, the stool fat tended to increase out of proportion. In a normal subject of the latter authors on 4 pints of milk a day, the stool fat amounted to 2.18 gm., while on 4½ pints a day it was 2.95 gm., and on 5 pints a day it was 5.13 gm. In a sprue case on a Schmidt diet containing 99 gm. fat, Rademaker [24] found the stool fat 48.23 per cent., and in a patient on 2 liters of milk daily containing 60.22 gm. of fat, Wynter-Blyth [18] found the stool fat 63.7 per cent. In seven sprue cases, Van der Scheer [11] made eleven estimations, of which we quote two as examples: on a daily ingestion of 60 gm. of fat, the fat in the stool was 38.2 per cent., and the loss of fat in the stool 74.5 per cent.; on 87 gm. of fat, the stool showed 34 per cent. and a loss of 76 per cent.

Cammidge [20] states that normal stools show about 1 per cent. of neutral fat and about 9 per cent. each of free fatty acid and soap. Thus, a high neutral fat would suggest the absence of the fat-splitting frement lipase. In three cases Brown [13] found absence of lipase. Bovaird [4] noted in three cases that the neutral fat was from 11 to 35 per cent. of the total, and in one case in which necropsy showed a negative pancreas the neutral fat was 60 per cent. In Whipple's [22] nonsprue case in which the pancreas was normal, the neutral fat was 62.5 per cent. Cammidge [20] is of the opinion that the higher total fat figures in sprue indicate both deficient pancreatic secretion and deficient intestinal absorption, but it is probable that the high fat figures are due in most cases, not to the absence of lipase, but rather to a combination of diarrhea with inability of the intestines to absorb even soaped and emulsified fat, because of the involvement of the lacteal capillaries in the intestinal atrophy.

EXAMINATION WITH THE SIGMOIDOSCOPE

In two of nine cases examined, Bovaird [4] found minute granular areas suggesting ulceration, in one an area of necrosis, and in several others a raw-beef color to the mucous membrane. In six of our cases, the sigmoidoscope revealed nothing abnormal except a greater or less degree of hemorrhoids, with, in two cases, excoriation and fissuring at the anus.

TONSILS

It is noteworthy that five of our patients showed diseased and pus-exuding tonsils.

ANATOMIC FINDINGS

In our two necropsy cases the pancreas was histologically normal and the intestines showed some thinning and chronic inflammation, but not of the marked degree spoken of in the textbooks. In Bovaird's [4] nocropsy case the findings were like ours. In one of our patients who is practically well, though with occasional attacks of burning in the mouth and the esophagus, an abdominal operation for removal of the gallbladder and the appendix did not reveal any special thinning of the small or large intestine.

ROENTGEN-RAY STUDY

In three cases a roentgen-ray study of the alimentary tract showed dilatation and sluggishness of the lower end of the ileum and the cecum and proximal one third or one half of the colon.

ETIOLOGY

Infection.—In 1901, Kohlbrügge [25] reported the finding of *Oidium albicans* (*Monilia albicans*), the thrush or sprue fungus of babies' mouths, in the stools and tongue scrapings, and at postmortem in the mouth, esophagus and intestine. Manson-Bahr[12] also found *Monilia albicans* in the same regions, and thought that the ordinary thrush fungus might become virulent in the tropics, especially in the exhaustion states produced by hot, humid climates. In almost all his recently studied cases, Castellani[26] has found monilias, and to these he attributes the fermentative diarrhea, but not the sprue itself. His monilias were of several varieties.

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[16] We regret that, owing to researches being carried on with insulin, our laboratory was so overwhelmed with work that we were unable to have amylase and lipase tests done in the five cases coming to us recently.

[17] Schmidt, A. O., and Strasburger, J.: Die Faeces des Menschen, Berlin, A. Hirschwald, 1901.

[18] Wynter-Blyth, J., quoted by Van der Scheer, Manson-Bahr and Thin.

[19] Harley and Goodbody: Chemical Investigation of Gastric and Intestinal Diseases, London, 1906.

[20] Cammidge, P. J.: Faeces of Children and Adults, New York, William Wood & Co., 1914.

[21] Pratt, J. H., quoted by Wood.

[22] Whipple, G. H.: Bull. Johns Hopkins Hos., 1907, p. 382.

[23] Gaultier: Coprologie clinique, 1907.

[24] Rademaker, G. A., Jr.: Observations on Indian Sprue, Diss., Leiden, 1906.

[25] Kohlbrügge, J. H. F.: Nederl. Tijdschr. v. Geneesk. 2: 16, 1901.

In 1914, Ashford[27] in Porto Rico reported a specific monilia, now known as *Monilia psilosis.* By injecting guinea-pigs and white rats intraperitoneally with his cultures, he produced a rapidly fatal septicemia with diarrhea, and lesions in the lungs and kidneys; and by injections into the tongues of rabbits he produced a general infection and diarrhea fatal in three or four days. Dold[28] remarks that though these experiments resulted in death, they do not prove that *Monilia psilosis* causes sprue.

In February, 1923, Ashford[27] recorded 1,595 cases of sprue seen in the years 1908 to 1921, inclusive. Of these, 502 were diagnosed without laboratory examination, 953 were confirmed by evidence of *Monilia psilosis* infection as shown by cultures of stool and tongue scrapings or by complement fixation tests, and 140 failed to show monilia infection. He states that while only 1.5 per cent. of tropical people living in endemic sprue zones have been found to harbor *Monilia psilosis* without showing its characteristic effects, 87.6 per cent. of his sprue patients were heavily infested with it. "Those that proved negative to *M. psilosis* both mycologically and serologically were usually old chronic cases, often in a state of cachexia, or those in whom the tongue lesions and characteristic diarrhea, once prominent, were quiescent at the time of examination." He had previously reported finding *M. psilosis* in 17 per cent. of ninety-two cases not sprue but with gastro-intestinal disturbances with excessive gas formation, in 3 per cent. of normal persons, and in 100 per cent. of forty-nine cases of sprue. Dold[28] of China found *Monilia* or its relatives (yeasts, *Oidia*) in 16 per cent. of nonsprue diarrheal stools, in 7.5 per cent. of normal stools, and in 92 per cent. of sprue stools.

Ashford has treated many cases with a vaccine made from *Monilia psilosis,* with surprisingly good results. In one series treated in Porto Rico while Ashford was in France, Michel[29] reports sixty-two cases in which from three to eight doses of vaccine were given. All had been diagnosed by Ashford, all the patients had *Monilia psilosis* in the stools, and all had positive complement fixation tests. Of the sixty-two patients, forty-nine were cured, twelve improved and one died. Gonzalez-Martinez[30] of Porto Rico obtained positive complement deviation tests with a *M. psilosis* antigen in 91.35 per cent. of his last eighty-one cases.

In one case, Oliver[31] made careful cultural tests and "on two occasions from the stool, twice from tongue scrapings, once from the sputum and once from a tooth abscess, a growth of yeasts was obtained which corresponded *in the main* to *Monilia psilosis* described by Ashford." J. M. Rogers[32] reports *Monilia psilosis* in a case from Korea, and Hannibal and Boyd[33] have reported it in two cases arising in the United States.

On the other hand, many have found monilias that did not meet the cultural requirements for Ashford's *Monilia psilosis,* and many have reported no monilias at all either in tongue scrapings or stools of typical sprue cases.

Many have been content with the finding of monilias by the microscope, while in thirteen cases Bovaird[4] found it thus only once. How much value can be attached to positive findings by the microscope we are not prepared to say, as the organisms may be from the food and killed by cooking; but we believe, with Craik,[34] that a negative microscopic examination is worthless and that cultures give the only reliable data.

Nicholls[35] of India failed to grow any yeast forms from the tongue and mouth scrapings of a number of native cases, and from six out of eleven cases in Europeans, Zinsser got negative cultures from the stool of one of Bovaird's[4] patients that died, and Cecil negative cultures from a typical case from Porto Rico (reported by Bovaird[4]). Manson-Bahr,[12] who has studied many cases and in most has found a monilia or some related species of yeast, believes that Ashford's claims for a specific monilia rest on a very slender foundation. Dold,[28] by infecting dogs, monkeys and mice with various yeasts, obtained lesions similar to those of human sprue, and found an actual invasion of the intestinal mucosa with yeast cells and mycelium. But he considered Ashford's claim to specificity unsubstantiated. He found it impossible to classify the monilias by cultural or biochemical reactions, and he was unable to culture out the *Monilia psilosis* according to the method of Ashford. This agreed with the experience of Manson-Bahr.[12]

It would seem, then, that while a large number of experts in tropical diseases feel that a monilia or some related yeast may be responsible, in the vast majority of the cases, for certain of the sprue symptoms very few consider *Monilia* the causative factor in the disease, very few accept Ashford's specific *Monilia psilosis,* and some report typical sprue cases of all grades of severity without *Monilia.*

Our Monilia Studies.—In the older cases studied microscopically, we failed to find *Monilia.* In our cultural mycologic studies in the recent five cases, we have used as a control three cultures of *Monilia psilosis* sent to us by Dr. McCoy of the Hygienic Laboratory, Washington, D. C. These were from long-standing cultures obtained from cases in Porto Rico six or seven years ago. The three cultures received gave different fermentation reactions on a series of seven different fermentable carbohydrates, indicating either that they are different organisms or different subvarieties of the same organism, or that they represent one and the same original organism, the different samples of which have become altered in their reactions, perhaps through repeated cultivating. Ashford particularly states that *the aberrant types may be reinvested with their cultural* characteristics by passage through animals, especially

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26. Castellani, A.: Brit. M. J. **1**: 338 (March 5) 1921.

27. Ashford, B. K.: Relation of the Genus "Monilia" to Certain Fermentative Conditions of the Intestinal Tract in Porto Rico, J. A. M. A. **64**: 1895 (June 5) 1915; Bol. de la Asoc. Med. de Puerto Rico **15**: 22 (Feb.) 1921; **15**: 249 (Dec.) 1921; Am. J. M. Sc. **154**: 157 (Aug.) 1917; **165**: 157 (Feb.) 1923; Am. J. Trop. Med. **2**: 139-150 (March) 1922; Oxford Medicine **5**, revised sheets issued 1923.

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guinea-pigs, and may undergo alterations in their fermentative properties on artificial cultivation. This procedure is being carried out in guinea-pigs with each of our three Hygienic Laboratory cultures as well as with representatives of each of the several groups isolated from the patients under investigation; but to date we have been unsuccessful in our restorations.

We will omit the details of Ashford's cultural requirements for *Monilia psilosis,* except as follows: "A stab-culture in gelatin gives a growth along the line with arborescent extension of mycelium forming an 'inverted pine tree.' Gelatin is never liquefied. Milk is rendered alkaline, but is neither clotted nor decolorized."

In none of our stab cultures have we had liquefaction, and in no instance have we had the characteristic "inverted pine tree" growth, excepting with the three strains of supposed *Monilia psilosis* sent us from the Hygienic Laboratory and in our one case from Korea, which gave a typical "inverted pine tree" growth when examined on the fifteenth day. In this case milk was unchanged, while from all the Hygienic Laboratory cultures milk showed a very slight acid condition with a coagulum in the bottom of the tubes, thus not meeting Ashford's requirements.

In Case 1, from China, three stool cultures all showed monilias somewhat similar to one of the Hygienic Laboratory cultures (No. 204), but of varying types.

In Case 2, from Java, different stool cultures showed several monilias, one of which closely resembled one of the Hygienic Laboratory cultures (No. 203).

In Case 3, from Korea, stool culture showed some monilias which fairly well corresponded with one of the Hygienic Laboratory cultures (No. 204).

In Case 4, from Cuba, a very persistent case presenting the characteristic Crombie[36] ulcers in the mouth, repeated cultures of stool and tongue scrapings have failed to show any monilias or yeasts of any kind. On direct smear, the stomach and duodenal contents and the stool of this patient have at times shown yeasts microscopically; but these gave no growth in broth cultures or surface seedings on special plating mediums. We suspect that these were cooked yeasts from the bread which the patient was eating at the time.

In Case 5, from Louisiana (a former resident of Haiti), cultures from the stool were negative for monilias, but cultures from the tongue and duodenal contents before death, and from the tongue and colon at necropsy showed a monilia which corresponded very closely with a *Monilia psilosis* culture from the Hygienic Laboratory (No. 203). This was the only case that gave consistent cultural findings of the monilia from all regions of the body, but it did not give the "inverted pine tree."

Thus, in four out of five cases we found monilias by culture, but in three of the patients the monilias obtained at different times have shown different cultural reactions throughout, and in one, a severe case, we could get no monilias from either stool or tongue curettings. Only one gave the characters of *Monilia psilosis* as described by Ashford.

Monilia vaccines obtained from the Hygienic Laboratory were administered in three severe cases, without apparent effect. They were also used as intracutaneous tests on three patients. In two of the patients who showed *Monilia* by culture, the skin reactions were negative, but in the patient who failed to show *Monilia* on cultural tests there was a marked local reaction to 0.01 c.c. intracutaneously of a vaccine of the strength of 1,000 million per cubic centimeter. In three controls, two were negative, and one that reacted positively was a blond northern elevator boy at St. Luke's Hospital, who had never been in a sprue region and is apparently well. The positive reaction showed by a wide areola and tenderness which lasted about four days, and redness with a decided nodule, which persisted between two and three weeks. Of course, an intracutaneous test merely shows susceptibility and not necessarily infection.

A complement fixation test using the vaccine was done in the case that came to necropsy, and was negative. We did not prepare a special *Monilia psilosis* antigen by alcoholic extraction, such as was used by Michel[29] of Ashford's laboratory, who reported a large series of positive complement fixations; but in a well marked or severe case one would not consider that necessary.

Streptococcus Viridans.—Leonard Rogers[1] was disposed to attribute importance to the repeated finding of *Streptococcus viridans* in the mouth, and reported good results from an autogenous oral streptococcus vaccine. His results were confirmed by the work of Nicholls, who obtained complement deviation tests in two out of three cases, and good results from the autogenous vaccines. Rogers suggested that *Streptococcus viridans* might produce conditions favorable for the development of *Monilia.*

Our Case 1 showed *Streptococcus viridans* in stools and tooth cultures. Case 2, in which there was marked mucous colitis, showed *S. viridans* in the mouth and in the mucus of the stool. Case 3 showed *S. viridans* in the stool. Case 4 showed *S. viridans* in the stool. Case 5, in which the patient was acutely ill and evidently septic at the last admission to the hospital, showed at necropsy a purulent gallbladder which gave a pure culture of *S. viridans.*

It is our experience in New York that the streptococcus of the *S. viridans* group is a frequent inhabitant of the mouth and intestines, and we believe that though it may become virulently pathogenic in some cases, it is usually not so. We are disposed to attribute no importance to it in these sprue cases, except in the case which showed it in the gallbladder pus at postmortem, and we consider that this pus was a coincident and not a manifestation of sprue.

A DEFICIENCY DISEASE

In a condition with emaciation, diarrhea, stomatitis and sore tongue, it was not strange to find those who placed it in the list of deficiency diseases. This theory was supported by the fact that the cure seemed to be largely dietary. Patients were promptly relieved by a fresh milk diet. They were often promptly relieved by a fresh fruit diet or a fresh meat diet. If not a food deficiency, how else could one account for complete relief from an exquisitely sensitive mouth, irritable stomach and diarrheal bowels by the ingestion of large quantities of irritating, raw, acid fruit?

We cannot gain any assistance in determining the etiology by the experiments of McCarrison, who fed monkeys on a vitamin-free diet and obtained lesions resembling the initial lesions of sprue; for such experiments might have produced, and usually do produce, entirely different lesions. Elders,[37] however, finds that the food of sprue patients has been deficient in the amino-acids, in which flesh is rich, and in vitamins A and B. In one of our cases, owing to poverty, there was a notable absence of amino-acid producers in the diet, and in another case, in which the patient was possessed of wealth, a habitual undereating of these substances all his life. Ashford[27] specifically lays stress on the fact that sprue is a disease of the better classes and not usually of the poor and underfed; yet he states that, on account of climatic diets or digestive or other disturbances, the diet of the sprue patients has been deficient particularly in protein, vitamin B and certain mineral substances, notably calcium and potassium. "Most of the Porto Rico cases present a history of having eaten little meat and an excess of vitamine-less carbohydrates." But because "there are acute cases of sprue in newcomers to the Island, usually Americans, in whom it would be begging the question to assert the presence of a food deficiency, and there are also cases who after a brief visit to the tropics have returned to the hearty diet of our Northern cities and have developed sprue," therefore, he argues, food deficiency alone does not produce sprue, and the infection by *Monilia psilosis* is necessary.

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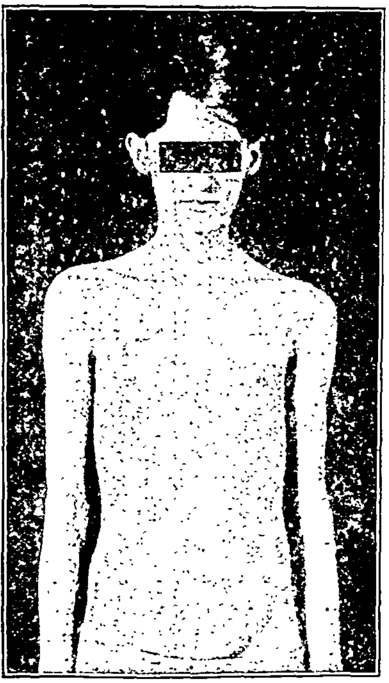
[36] Crombie, A.: Indian Med. Gaz., December, 1880; May, 1892.

[37] Elders, C.: Nederl. Tijdschr. v. Geneesk., 1917, p. 1253; 1919, p. 1683; 1920, p. 2189.



Appearance of Patient 4: age, 23; weight, 90 pounds (41 kg.); hemoglobin index, 1.13; hemoglobin, 88.

A COMBINED DEFICIENCY AND MYCOTIC DISEASE

This is Ashford's most recent etiologic idea. In an article on the conception that sprue is a mycosis superimposed on a state of deficiency in certain essential food elements Ashford (1922) reached the following conclusions: "Most frequently typical sprue is preceded by a physiologic glandular deficiency recognizable by a deficiency syndrome in which pallor, lassitude, mental hebetude and gastro-intestinal derangement are prominent. In this condition there is a marked reduction in output of the digestive glands, particularly of the pancreas and intestinal glands. This results in a change in reaction and composition of the intestinal contents, which brings about a high acidity. In this state, *Monilia psilosis* finds a medium in which it can colonize and produce the typical picture we know as sprue. In a minority of cases, sprue occurs in those in whom food deficiency plays no evident part and in whom the disease seems to come by sheer force of infection; but it is justifiable to suppose that some other factor has diminished the output of the digestive glands to permit the successful implantation of *Monilia*. The organism of sprue usually appears to find no propitious medium for colonization, save in debilitated states, principally due to food deficiency."

Manson-Bahr[12] thought that, owing to the hot climate, an exhaustion state might develop which would permit the ordinary thrush fungus, *Monilia albicans*, to become virulent.

So far as our knowledge extends at present, we accept Ashford's theory of the double cause of the disease, but we are not quite ready to accept his theory that the superimposed infecting organism is the specific *Monilia psilosis*, or even that it need be any monilia.

PELLAGRA VERSUS SPRUE

It has been a matter of interest to us to speculate on a possible common factor in the two closely related diseases, pellagra and sprue. In pellagra, a monilia has only rarely been found. In the vast majority of cases of sprue, a monilia is present. Could it be possible that these two diseases may have the same or similar underlying conditions, but that the characteristics of sprue mostly come from the added infection of a monilia or some related organism, while those of pellagra are due to some other infection, such as that of a fluorescent fungus with photodynamic properties as recently isolated in some cases by Jobling and Arnold?[38]

It is noteworthy that the chief amino-acid producers, milk, eggs and flesh, are less consumed in warm climates than in cold, and that just these substances have been notably lacking in the diet of pellagrins. We have the statement of Elders[37] and Ashford as heretofore mentioned that they are also lacking in the diet of many sprue cases. May it not be that the change of habit from liberal to sparse consumption of proteins, which is the result of removal from a colder to a hotter region, may account for the special susceptibility to sprue in Europeans and Americans who have gone from a colder country to make their residence in the tropics?

In 1915, Ashford wrote: "May not some of the pellagra of our Southern states be in reality sprue? It would be interesting to study some of the cases without skin lesions in which the diagnosis is pending between these two diseases. I have had so far three cases with stomatitis and white diarrhea which I considered sprue without moniliasis of the tongue, but which later developed the pellagrous eruption." Graham,[39] Simon,[15] Wood[3] and others have called attention to the presence of sprue in the southern United States, and to its possible confusion with pellagra, especially those cases of pellagra that do not present skin lesions. Further, Wood remarks, "It is no doubt true that many cases of pellagra are complicated by sprue." Michel[20] of Porto Rico reported two cases in which both diseases were present.

One of our patients, the Cuban, whose picture is shown, gave a history of poverty during his boyhood and adolescence with absence of milk and only very occasionally any flesh foods or eggs in his diet, which consisted mostly of fruits, rice and potatoes. He developed sprue symptoms several years ago. About the first of this year the skin of both hands seemed to be more pigmented than before, and became abnormally dry and scaly and slightly erythematous at the wrists, and he had a slight eczematous eruption on the backs of both legs. But we have had him gone over very carefully by Dr. Ward J. MacNeal, the pellagra authority, who has concluded that these lesions are definitely not pellagrous and that the correct diagnosis is presumably sprue. This is the one recent case in which we have failed to find some form of *Monilia*.

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[38] Jobling, J. W., and [illegible]ld, Lloyd: Observations and Reflections on the Etiology [illegible] lagr [illegible] M. A. 80 [illegible]. 10) 1923.

[39] Graham [illegible] ootnote

THE SIGNIFICANCE OF THE GEOGRAPHIC DISTRIBUTION

We would call attention to the wide geographic distribution of sprue, as illustrated in our cases. For if monilias are found in most of the sprue cases from all parts of the tropical and subtropical areas of the globe, this finding is suggestive that in most cases an infection with *Monilia* may be the precipitating cause, or at least an important causative factor in the production of the clinical condition recognized as sprue. Moreover, Ashford's claim to specificity for *Monilia psilosis* can be sustained only if in undoubted cases from all parts of the world the monilias found consistently meet his cultural requirements.

CONCLUSION

In sprue we have a disease for which no fully reliable laboratory criteria have been established, and therefore in some of the cases the diagnosis might be questioned. In all but three of our cases the diagnosis came with the patient, and, judged by the history and clinical findings, was accepted by us. In the three diagnosticated by us, the symptoms were severe and gave a striking and characteristic clinical picture of the disease.

We have not completed our research on our present cases, and we are extending it to new cases just arrived. We have also undertaken a study of a series of cultures of *Monilia psilosis* kindly sent us from Porto Rico by Ashford. We therefore refrain at this time from expressing definite opinions as to (1) whether or not *Monilia psilosis* is a distinct species with specificity for sprue; and (2) whether or not *Monilia* is an important accompaniment of most sprue cases. We suspect, however, that the former idea is not true and that the latter is.

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TREATMENT BY NEGLECT

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It seems to be the fundamental rule running through Nature that periods of rest or quiescence alternate with periods of activity, complete or incomplete. In this great world we know that light and darkness, summer and winter, rain and dryness alternate; and in our bodies respiration, heart beats and mental activity alternate with periods of rest. Joy and sorrow, hope and fear, exaltation and depression, love and hate alternate.

When we turn to the field of therapeutics, we can think of many conditions that require some active and immediate attention, such as injuries resulting from accidents; but in all cases—surgical or medical—there comes a period of rest. Following a gallbladder operation, removal of the tonsils or the appendix, the setting of a fracture, the removal of the prostate gland or of a cataract, a period of rest follows; so with therapeutics of medicine, such as drugs, baths and massage, administration is followed by periods of rest.

To abridge this period of rest is in general meddlesome therapeutics. Yet, what is more common with the patient or his friends than to urge the physician to do something—this, that or the other thing? And what physician has not been called on to resist his own impulse to do this, that or the other thing in his extreme anxiety to relieve the patient and hasten his recovery? The man who cannot wait is a man who is keyed up and desires immediate results. He is with us always, and his numbers are legion. He desires quick gain, large profits in a financial way, short cuts to education and an easy way to heaven. If his illness is at all prolonged he is apt to go from one medical adviser to another. He is likely to try the various cults and cure-alls, selecting the one that most appeals to his make-up and temperament, whether on a materialistic or an idealistic basis. Many, many times—too often—the patient's clamor for quick cure has led the physician to change face about in therapeutics far more than is good for the patient or for his own professional development.

Let me attempt more particularly to apply these principles to the treatment of a great group of functional diseases which we call the psychoneuroses, which include hysteria, neurasthenia, psychasthenia and anxiety neuroses. Here commonly the patient is self-centered, given to self-pity, in many cases to an astonishing degree. The fact that his desire and thought are so set on himself and the cure defeats that very object. He pulls, but he does not let go. There is not in the man the alternative that is to be found in the normal man, periods of somberness and foolishness, of activity and rest, desire for work and for play. He wrinkles his brows and sets himself toward the goal of getting well; but he cannot laugh—he cannot let go.

The task before the physician who handles such a patient is to lead him to forget himself; and this obviously cannot be done by merely telling the patient to do so. He must try to bring to the channels normal life, activity in the various ways depending on his make-up, temperament and social situation. He should be taught to work and to play and somehow taught to laugh. Baths, regulation of the bowels, and massage, may all help to these ends, but there is something about the personality of the physician, something of guidance of the patient's whole life, that is vital to the success of the plan in many cases. There is one thing these patients need which they often do not receive; namely, neglect. Not careless neglect, the neglect of a physician not on his job; but studied, careful neglect: the sort of neglect that has for its object to lead the patient to lean on himself and to forget himself. The medicine bottle and the pill box, I often tell people, are crutches and sometimes useful crutches, but always should be dispensed with as soon as it is possible to do so. The physician is a crutch himself, to be dispensed with as soon as the patient can do without him.

The great value of thorough physical and mental examinations of patients has been sufficiently emphasized of late years; but while approving of all this, I am of the opinion that there are patients who are examined far too much. The self-centered psychoneurotic delights in examinations, reexaminations and more examinations. And in these days of many clinical procedures and manifold laboratory tests we run a great risk of overexamining certain of these psychoneurotics. There is a judicious neglect which the physician makes in his visits. It is extremely important and necessary that enough time be given to hear the patient's story; but it is a mistake to spend time in hearing undue repetitions of this story. While the first visit may be of an hour's duration, the next one may be half an hour; and other visits of a minute and half may be most appropriate. There are times when the patient is much better visited once a week or once in two weeks rather than every other day. There is a

tral and circumcentral scotoma, transitory diplopia, and nystagmus. The most pathognomonic sign of disseminated sclerosis is pallor of the temporal disks. So far as we know, it is found in no other disease.

The islets of disseminated sclerosis may occur in any part of the central nervous system; hence evidences of encroachment on, and destruction of, any part of the central nervous system may be a symptom of disseminated sclerosis.

No one is ever justified in giving arbitrarily an unfavorable prognosis in disseminated sclerosis, it matters not how helpless the victim of the disease may be; and since many have taken in hand to set forth a declaration of other import, I relate this experience: Twelve years ago there was brought to the Neurological Institute a young athlete, bedridden with spastic paraplegia for nearly a year. Because of fairly definite sensory disturbance, it was thought that he might have a tumor compressing the spinal cord. Repeated examination and protracted observation showed that, in addition to the spastic paraplegia and its customary concomitants, he had loss of abdominal reflexes, nystagmus, enfeeblement of the left upper extremity, and circumcentral scotoma. The vesical sphincter was irritable, the rectal sphincter sluggish. The symptoms had existed for nearly a year, and the state of helplessness which caused so much anxiety to him and to his family was of four months' duration. Repeated inquiry finally elicited the fact that when he was in high school eight years before, he had had an attack of "lameness" that laid him up for several weeks, and that at that time his feet and hands were numb. This man has now been at work for ten years, the advertising manager of a large and engrossing business. He admits that he plays a good game of golf, but I sometimes beat him.

Eighteen months ago, Dr. Noguchi suggested that I select a number of cases of disseminated sclerosis and send blood and cerebrospinal fluid to him, in order that he might test the alleged spirochetal origin of the disease. I selected eight cases:

Case 1.—A man, aged 23, had had dishonorable discharge from the army. The discharge regrettably reflects on the clinical acumen of some of our profession. He was looked on as a malingerer. If spasticity, paralysis, exaggerated tendon jerks, the Babinski sign, loss of abdominal reflex, nystagmus, scanning speech, and intention tremor constitute competent testimony, he has disseminated sclerosis. He was a recent case, therefore, and there is nothing further interesting about him.

Case 2.—A man, aged 35, unmarried, presented a "classical" case of disseminated sclerosis. The noteworthy feature was that he had had profound osteomyelitis as a boy and recovered after a prolonged stay in the Rocky Mountains.

Case 3.—A man, aged 27, had had symptoms for two years. His was an "atypical" case; that is, he had no nystagmus, intention tremor, nor scanning speech, but he was a genuine example of disseminated sclerosis nevertheless.

Case 4.—A man, aged 22, had more of the so-called typical, objective symptoms than in Case 3, and few would doubt the validity of the diagnosis.

Case 5.—A woman, aged 40, had had symptoms only two years. One should always be on the lookout not to mistake such symptoms in a person of 40 for disease of the blood or blood vessels. But, as in so many of these cases, it was found on close inquiry that it was this attack that had existed two years. This patient had had transitory symptoms when she was 26, and again when she was 31.

Case 6.—A man, aged 36, a painter, had a doubtful case. It was thought that his symptoms might be due to lead poisoning, but we never were able to recover lead from the urine, and there was no stippling of the blood corpuscles. As time goes on, one is permitted to say with more assurance that this is a case of disseminated sclerosis.

Case 7.—A man, aged 34, whose symptoms had been in existence three years, had never had any indication of a remission.

Case 8.—A man, aged 46, had been ill during seven years. His disease had frequently been diagnosed as lateral sclerosis, and nobody knows just what that means. Most cases diagnosed as lateral sclerosis are cases of disseminated sclerosis.

Seven of our patients were Jews, and two, Gentiles. This will give cause for reflection only to those who have never been to the Neurological Institute, or who are not familiar with its statistics.

II. EXPERIMENTAL RESULTS IN ANIMALS INOCULATED WITH BLOOD AND CEREBROSPINAL FLUID

By Hideyo Noguchi, M.D.

The possibility is gaining ground that disseminated sclerosis is of infectious origin. Bullock,[1] as long ago as 1913, reported that he had produced the disease in laboratory animals, but it was not until Kuhn and Steiner[2] announced, in 1917, their finding of a spirochete in the blood and organs of guinea-pigs and rabbits inoculated with spinal fluid or blood or both from four exacerbation cases (three fresh and one recent) that the problem appeared to be narrowed down to a definite micro-organism. The spirochete was observed in fresh preparations under the dark-field microscope, also in smears stained by Loeffler's technic for flagella staining, and occasionally in alcohol-fixed organs stained by the Levaditi method. The organism was designated by Kuhn and Steiner as *Spirochaeta argentinesis* from the Latin name of Strasbourg, where the work was carried on.

The description of *Spirochaeta argentinesis* is of interest because of the rather inconstant morphologic features of the organism. By dark-field illumination it was said to vary in length from a fraction of the diameter of the red cell of the infected animal to a whole diameter, while in width it was more delicate than *Leptospira icterohaemorrhagiae* of Weil's disease, being often of extraordinary thinness. There were often highly refractile balls at both ends. Some specimens showed a loop at the end or along the course of the body. The movements were somewhat wormlike, moderately active, but seldom rotatory as in the case of *Leptospira icterohaemorrhagiae*. In stained preparations a small, delicate, straight projection of varying size was observed, resembling a flagellum. In Levaditi sections of the liver of animals, the organisms appeared only in the blood vessels, never in the tissue itself. Only a few isolated blood vessels were involved. No spirochetes were found in human materials.

In guinea-pigs the disease lasted from three days to twelve weeks from the time of inoculation to death. Paralysis was usually present. In rabbits the symptoms consisted of emaciation, inactivity, ruffled fur, paroxysmal drowsiness, increased reflexes, and paralysis before death. No remarkable changes of organs were observed at necropsy, and no organisms grew on culture mediums.

Siemerling,[3] in 1918, asserted that he had observed under the dark-field microscope a similar spirochete in the brain of a man who died of multiple sclerosis. Büscher[4] and Speer,[5] in 1921, reported each one positive finding. Speer's case was diagnosed by histologic examination of the brain and cord, and the spirochete was found under the dark-field in a fresh preparation from a grayish red focus in the medulla oblongata. A number of larger forms were seen, which in appearance recalled the tetanus bacillus or spermatozoa, or had lateral buds. Also some regular forms resembling *Treponema pallidum,* but perhaps shorter and thinner, were described. The spirochetes remained active in the smear for seven hours. Speer, like Siemerling and Büscher, found no spirochetes in Levaditi sections.

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[1] Bullock, W. E.: The Experimental Transmission of Disseminated Sclerosis to Rabbits, Lancet **2**: 1185, 1913.

[2] Kuhn, P., and Steiner, G.: Ueber die Ursache der multiplen Sklerose, Med. Klin. **13**: 1007, 1917.

[3] Siemerling, E.: Spirochätenbefund in Gehirn eines Falles von multipler Sklerose, Berl. klin. Wchnschr. **55**: 273, 1918.

Simons,[6] in 1918, reported positive transmission to rabbits with blood. Marinesco,[7] in 1919, saw active spirochetes in the fluid from the fourth ventricle of guinea-pigs dying of paralysis within from three to four days after intracerebral inoculations of blood serums from two cases of multiple sclerosis. Marinesco failed, however, to obtain similar positive results on repeating the experiments.

Kuhn and Steiner[8] studied thirteen additional cases and found the spirochete in four of six early cases and in one exacerbation case, but none in six old cases. By inoculating blood intra-ocularly, positive transmission to rabbits and guinea-pigs was obtained in six cases. The authors report successful demonstration of the spirochetes in tissues by silver impregnation.

Birley and Dudgeon,[9] in 1921, obtained uniformly negative results with materials from thirty-five carefully selected cases of multiple sclerosis. Stevenson[10] examined thirty-seven sections, from four cases, stained by Jahnel's silver impregnation method, but found no spirochetes.

Kalberlah[11] studied two relatively recent cases; one of the rabbits inoculated with cerebrospinal fluid from the first case showed symptoms of paralysis, and a spirochete was found in the circulating blood, while in the second case numerous spirochetes of indisputable morphology were demonstrated in the blood vessels and liver tissue. Pettit[12] succeeded in producing a fatal disease in rabbits, and in one instance also in guinea-pigs and a monkey, with cerebrospinal fluid from four cases, and organisms resembling spirochetes were found in the cerebrospinal fluid of the animals. In one instance he was also successful in transmitting the disease from monkey to rabbit.

Gerson[13] does not regard the finding of spirochetes in certain instances as satisfactory evidence that they have a specific etiologic relation to multiple sclerosis, and calls attention to the fact that certain cases of syphilis simulate typical multiple sclerosis, whence confusion in diagnosis may have occurred in the instances in which spirochetes were found.

Our purpose in taking up the question of the etiology of multiple sclerosis was, if possible, to confirm and extend the observations of Kuhn and Steiner, and to study the spirochete by means of cultivation. As indicated in the experimental protocols presented below, the results were disappointing, being chiefly negative.

The histories of the eight cases available for study have been outlined by Dr. Collins. The general plan of the experiments was as follows:

The blood and cerebrospinal fluid in every instance were utilized within a few hours from the time of withdrawal. The blood was citrated, oxalated, defibrinated, or used in the form of clear serum from the clot. The materials were sometimes inoculated separately into rabbits and guinea-pigs, but more frequently a mixture of blood and spinal fluid was employed. In most cases a combination of two or more modes of inoculation was used. A rabbit or guinea-pig was usually injected both intracerebrally and intraperitoneally, and the rabbits, in addition, often received some material intravenously and intratesticularly. Intra-ocular instead of intracerebral inoculations were performed in some instances. Cultures were set up with ascitic fluid tissue medium, such as that employed for the cultivation of *Treponema pallidum* and other anaerobic treponemes;[14] also in the medium used for growing relapsing fever spirochetes,[15] and in leptospira medium.[16]

Material from Case 1 was inoculated on two occasions, six guinea-pigs and three rabbits being used in the first instance, and four guinea-pigs and four rabbits in the second. Nothing of note developed. In Cases 2, 3, 4, 5 and 6, inoculations were made in each instance into four guinea-pigs and four rabbits, with similar negative results. In Case 7, two guinea-pigs and four rabbits, and in Case 8, three rabbits were inoculated, also without any result that can be interpreted as experimental reproduction of multiple sclerosis.

Among the guinea-pigs, a number of animals showed one or more periods of high temperature, lasting sometimes for several days and being followed by irregular fever. Cultural examination of these animals usually revealed infection with a strain of paratyphoid or hog cholera bacillus. Some recovered; others remained alive, but showed marked emaciation. Rabbits also suffered to some extent from secondary infection. Some died of rabbit septicemia, the cultural and pathologic findings being typical of that infection. Occasionally a peculiar loss of equilibrium was observed, but this symptom is not uncommon in infection with *Bacillus lepisepticus.*

Repeated dark-field examinations of the blood and cerebrospinal fluid while perfectly fresh failed to reveal any spirochetes. Most of the culture tubes remained free from ordinary contaminations, but no spirochetes were found in any of them. Injections of the contents of the culture tubes into guinea-pigs and rabbits produced no symptoms of significance. Dark-field examination of peripheral or heart blood of the inoculated guinea-pigs and rabbits showed no spirochetes. In addition to blood, emulsions of liver, spleen, kidney, suprarenal glands, lymph nodes, and the brain from guinea-pigs or rabbits killed at the height of fever were carefully examined under the dark-field microscope

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without a single positive finding. The usual morphologic elements were present in the citrated and defibrinated blood, in suspensions of the clot, and in organ emulsions, elements such as frequently deceive even the skilled microscopist when seen by dark-field illumination. Errors from this source have occurred in the past and are particularly apt to occur when the illumination is partial, the delicate, tremulous, beaded filaments of varying length and width appearing as if moderately motile, and behaving not unlike the leptospira group of spirochetes. By full central illumination they are shown to be thinner than the leptospiras. These filaments are abundant in blood suspensions kept for a time at room temperature, and there are many swimming forms not attached to erythrocytes. They are undoubtedly derived from altered red corpuscles. They cannot be stained by Giemsa's solution, but are sometimes brought out by Loeffler's stain for flagella. It is, of course, unlikely that Kuhn and Steiner interpreted these filaments as delicate spirochetes of the leptospira group, yet the description of their spirochete strikingly suggests the forms just referred to.

The negative results obtained in the present investigation indicate that the demonstration of *Spirochaeta argentinesis* and the experimental reproduction of multiple sclerosis in guinea-pigs and rabbits are difficult. Renewed effort with material from fresher cases is desirable.

Clinical Notes, Suggestions, and New Instruments

LEFT SUPERIOR CERVICAL SYMPATHECTOMY UNDER LOCAL ANESTHESIA IN ANGINA PECTORIS

Jay Harvey Bacon, M.D., Peoria, Ill.

The recent articles of Brown and Coffee, and of Muller, have given added interest to, as well as a summary of, our present knowledge of the control of the sympathetic over the vascular system. The barrenness of the literature on this subject justifies another case report with some remarks on the technic and regional anatomy of this operation.

REPORT OF CASE

G. J., a man, aged 78, a cement worker, born in Germany, who had three healthy adult children over 50, whose father died of cancer at 84, and whose mother died of nephritis at 30, had always been robust. He always had chronic bronchitis, which he believed followed an attack of malaria in childhood. He was a moderate drinker and a very hard worker.

About three years ago, while climbing a hill, he was suddenly seized with a heavy feeling in the chest, over the precordium, which quickly disappeared on resting. Since then, similar attacks have followed exertion, with increasing frequency until February, 1923, when he gave up work, which at that time was the driving and care of a team of horses. During the month of November, 1922, he had a general arthritis, with lumbar pain. This left a residual soreness of the left shoulder, which was difficult at times to distinguish from the onset of an anginal attack. The anginal attacks at first only followed severe exertion, but in March, 1923, they began to awaken him from sleep and became more frequent and severe at night. By April, severe attacks followed any excitement or exertion, such as coughing, eating or defecation; besides these, apparently spontaneous ones became very frequent.

Rest in bed, the administration of iodids, bromids, salicylates, benzyl benzoate, iron, arsenic and calcium lactate did not delay the progress of the disease. The administration of amyl nitrite in 5 minim pearls was started, May 10, and at first it gave almost instant relief. By May 21, the patient was consuming from six to eight pearls a day. His appetite disappeared, and vomiting frequently followed an attack. With increasing frequency and severity of attacks, 1/100 grain tablets of nitroglycerin were given under the tongue every half hour as a preventive, but without success. Slight temporary improvement followed the use of spirit of glyceryl trinitrate. June 13, after weeks in bed, the patient was receiving the equivalent of 1/100 grain of nitroglycerin under his tongue, by a trained nurse, every fifteen minutes night and day, whether sleeping or waking, from fifteen to twenty-five pearls of amyl nitrite during the twenty-four hours; 2 grains of sodium nitrite and 1/4 grain of morphin every three hours. In spite of this heroic dosage, he suffered eight severe attacks in six hours, during which the family thought the patient was dying and had the last sacraments of the church administered.

At this time he was sallow, anemic and gray-haired and fairly well nourished. His wrinkled face, falling in edematous folds under his eyes, caused a sorrowful, masklike expression. There was marked arcus senilis. Entropion of both lower lids associated with narrowed palpebral openings was also present. There was no paralysis of the cranial nerves, and no visible pulsation in the cervical blood vessels. He had no enlarged glands; no tracheal tug was observed. He had a barrel shaped chest held in expansion, and the lungs were large and emphysematous. Occasionally a bronchial râle was heard. His vital capacity was 3.8 liters; there was no visible or palpable apex heat, and no precordial heave. Manubrial dulness was markedly increased. The heart was moderately enlarged, but no adventitious heart bounds were heard. Arterial sclerosis was marked. There were no irregularities in force or rhythm. The right and left radial pulses were synchronous. The abdomen was normal. There was no edema of the feet. Traces of albumin and a few hyaline casts were found in the urine. The hemoglobin was 70 per cent. The systolic pressure was 140 mm. of mercury; the diastolic, 80. The Wassermann test was negative.

Mild seizures lasted about five minutes, while severe ones might last for thirty minutes and be followed by a second attack if the nitrites were withheld for more than fifteen minutes. The onset of a seizure was usually marked by an aching sensation on the median side of the left olecranon, which persisted and extended to both the left wrist and shoulder. After a few seconds a crushing agonizing pain gripped his chest, centering over the precordium. He said his whole body seemed to tingle like "pins and needles" for a few minutes, and then the pain gradually vanished. If he was awake he told the nurse, "she's a-coming again," and then remained quiet if the attack was of moderate severity; but if severe, he might get out of bed and lie prone on his face on the floor, giving vent to slow expiratory groans, which resembled the bellow of a bull. Frequently he had awakened the neighbors, and sometimes the policeman on the beat came into the house to offer assistance. During sleep he became restless and groaned, and if the attack was mild and his nitroglycerin tablet was active and given quickly, he might not awaken.

After an attack, he was exhausted. If vomiting followed, it frequently precipitated a second attack. During an attack, no change in pupils was observable. The palpebral opening narrowed. The pulse was slightly changed, sometimes slower, sometimes a little faster. The blood pressure was difficult to get accurately, but apparently did not change in mild attacks.

After witnessing several of the severe attacks and noting the intense anguish the man was suffering, with the apparent futility of any tried medicine to ward off the rapidly approaching end, I yielded to the repeated demands of the patient and his family to try an almost unknown procedure.

With anatomies differing as to the exact location of the superior cervical sympathetic ganglion, I felt safer in following the general lines laid down by Mayo,[1] except that I used a local anesthetic. I selected the left side because there the onset and greatest severity was displayed.

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[1] Mayo, C. H.: The Surgical Treatment of Exophthalmos, J. A. M. A. 63: 1147 (Oct. 3) 1914.

June 14, after the patient had passed a night of terrific suffering, under 1 per cent. procain local anesthesia, I made a 3 inch incision over the anterior border of the left sternocleidomastoid muscle, with its upper end on the level of the angle of the jaw when the head was well extended. The incision was deepened until the spinal accessory nerve was recognized, and then nerve and muscle were both retracted laterad. The tips of the lateral transverse processes were almost directly under the fingers and could be readily palpated, as could the pulsation of the internal carotid artery in the carotid sheath on the median side of the incision, which might be retracted mediad while the incision exposed the tips of the transverse processes. Closely hugging the anterior surface of the transverse processes the longus colli et capitis muscle was exposed. On the anterior surface of this muscle, about 1 cm. from its lateral border, the spread out, pinkish-gray ganglion was found just posterior to the carotid sheath. It was about 2.5 cm. in length, 0.75 cm. in breadth, and ⅓ cm. in thickness, fairly firm in consistency, with three or four median and lateral branches each, and a heavier cord extending toward the head and another down the neck to unite with the median cervical sympathetic ganglion.

Teleroentgenographic Examination of Heart at Six Feet Distance from Tube

	Normal Cm.	Patient 5/22/23	Patient 7/14/23	Patient 8/14/23
Transverse diameter of aorta....	4.5	9.3	8.8	8.8
Left ventricle	6.8	9.6	10.8	9.5
Right auricle	3.3	6.2	5.1	6.3
Left auricle	4.5	6	9.3	5.8
Greatest transverse diameter.....	13	15	14.5	15.5
Greatest oblique diameter.......	14	16.8	16.3	16.6

Noting that pinching of the ganglion did not slow the heart rate to rule out the possibility of mistaking it for the vagus nerve, which at a higher level becomes fusiform in shape, I excised it in toto with as much of its several attachments as possible. This was immediately followed by a dull pain over the left ear and the mastoid and occipitoparietal region. There being no hemorrhage, the superficial fascia was closed with a few interrupted sutures of catgut, and the skin was closed with horsehair without drainage.

The patient was returned to his room feeling comfortable, after being absent from it for fifty-six minutes, of which from seven to ten were consumed in changing soiled drapings, the result of a severe attack followed by vomiting and the administrations of nitrites.

If in doubt at any time, there are landmarks that will quickly orient one. While finding the spinal accessory nerve, the submaxillary gland will protrude into the upper end of the incision, and just posterior to it the lateral belly of the digastric muscle. Mediad the pulsation of the internal carotid artery is always available in the carotid sheath, which need not be opened. In the sheath at this level, just anterior and lateral to the artery, is the internal jugular vein; and posteriorly, between vein and artery, is the vagus nerve. Many lymph nodes will be encountered, which if diseased and enlarged from other causes might give considerable difficulty to the dissection, but should offer none in their identification. The second and third cervical nerves lie posterior and lateral to the respective transverse processes. The fourth cervical nerve, from which springs the phrenic, lies at the very lower end of the incision and is out of the way unless one wishes to excise the median cervical ganglion.

With the exception of the first two nights after operation when two ¼ grain doses of morphin were administered for sleep, no morphin, amyl nitrite or sodium nitrite were given. For the first two weeks, nitroglycerin, ¹⁄₁₀₀ grain, was given in every half hour, and now, after two months, about 1 grain every two hours during the day and every three hours during the night.

July 14, one month after the operation there had been no severe attack; the patient was cheerful, was eating and sleeping better, and was gaining in strength and weight. The left eye seemed slightly depressed, but no narrowing of the palpebral opening was appreciable. The wound was entirely healed and barely visible. There was some hyperesthesia of the left ear, and the mastoid and upper posterior triangle of the neck; the pulse was regular and ranged at about 75 to the minute. There was no paralysis of the head or neck. The systolic blood pressure was 132; the diastolic, 78. A soft systolic bruit was heard over the base and apex.

August 14, two months after the operation the patient was very cheerful and contented, and said that no operation was needed on the right side. His appetite was good, and he slept well, he could also walk a mile a day without discomfort. He took a normal interest in the daily paper and the happenings of his home and in the neighborhood. The bruit over the heart had disappeared. The pulse rate averaged 70. The systolic pressure had dropped to 110, the diastolic, to 75. He was not so short of breath as formerly. His greatest difficulty came during and after eating, when he had a feeling of pressure around the heart.

Teleroentgenographic examination of the heart disclosed that the diameter of the aorta had decreased.

So far there has been effected a complete relief from all severe symptoms.

The results have justified the means used in this case, and it is a justifiable procedure in those severe cases of angina pectoris that do not respond to rest and diet and the administration of nitrites. The incision over the anterior border of the sternocleidomastoid muscle gives a quick easy approach, and it may be safely attempted under local anesthesia when the condition of the patient will not justify the use of a general anesthesia.

CONDITION FIVE MONTHS AFTER OPERATION

November 12, five months after operation, the patient reported that he was in better health than had existed during the last two years. He had gained 26 pounds (12 kg.), and his waist measure had increased 4 inches in circumference. He frequently slept six hours at a stretch, and ate of everything. Overeating, however, was followed by a feeling of fulness and pressure on the level of the sixth rib at its cartilage articulation on the right side. He had not experienced any pain in the heart region, but had an aching pain in both arms and hands when they were cold or he was cold and when he became excited. This left when his hands were warmed. He experienced quicker relief if he took a minimum of spirit of glyceryl trinitrate, with the application of heat. He walked around all day without discomfort, and frequently walked 2 or 3 miles without resting, without discomfort. The scar in the neck was barely discernible. The scar was tender on pressure at the upper end. There was a just appreciable depression of the left eye. The pulse was 72; respiration, 20; systolic pressure, 120; diastolic, 78. There was an occasional extrasystole. No abnormal sounds were heard. There was some irregularity in the force of the beats. Red blood cells numbered 4,900,000; hemoglobin, 87 per cent.

202 Columbia Terrace.

A CASE OF BILATERAL RENAL HEMORRHAGE

ABRAHAM STRACHSTEIN, M.D., NEW YORK

J. S., a man, aged 29, single, salesman, referred to me by Dr. M. H. Hazay, May 25, 1921, had never had urinary or any other disease. About three years ago his attention was called to the fact that the urine appeared bloody; since it caused him no inconvenience whatsoever, he did nothing to relieve the condition. The family history was negative. Recently he applied for a life insurance policy, and was rejected because of hematuria. The patient never had any renal colic, never noticed any gravel in the urine, and was free from any symptoms except the blood from the genito-urinary tract.

Cystoscopic examination disclosed neither growth nor stones; the bladder mucosa was moderately engorged with both ureter openings perfectly normal except for the appearance of blood-tinged urine oozing from the two sides alike. Laboratory examination of catheterized specimens[1] showed a large amount of blood present, but no other microscopic elements. No tubercle bacilli or renal casts were present. The roentgen ray showed neither abnormal size of kidney nor presence of any shadows.

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[1] The patient was catheterized at least four times.

We lost track of the patient until Feb. 28, 1922, when he returned, utterly discouraged. He had been treated by several physicians, as well as at one prominent hospital uptown, but the bleeding still persisted. He was advised to have his tonsils removed, which was done, without any effect whatever. Cystoscopy was again performed, with the same findings. Five cubic centimeters of silver nitrate solution, 0.5 per cent., was injected into each renal pelvis, and allowed to escape slowly through the ureteral catheters. This procedure was again repeated in five days, so that in all the patient received five treatments. Although the condition had existed for several years, the few local treatments totally cleared it up, so that the patient voided a perfectly clear urine.

Although the treatment resorted to in this case brought about a quick and satisfactory result, nevertheless the exact diagnosis is speculative. The literature reports many cases of renal hemorrhage of undiagnosed origin, or, to be more exact, hemorrhage without localizing a pathologic lesion as a basis for it. Hemorrhage, however, from both sides is rather rare. Of course, we exclude from this group such cases as nephritis with anatomic changes, toxemias, renal calculi, tuberculosis or neoplasms. E. L. Young,[2] for instance, refers to these cases as prenephritic condition of the kidneys. Why the case reported here cleared up by local treatment so promptly could hardly be explained by his theory.

It appears plausible, in view of the result obtained, that the diagnosis in our case was one of a bilateral papillomatous pyelitis, the hemorrhages having been due to vegetations in the pelvis and calices.

17 East Thirty-Eighth Street.

A CASE OF POSSIBLE THIRD INFECTION WITH SYPHILIS

Loyd Thompson, M.D., Hot Springs National Park, Ark.

Since the advent of the intensive methods of treating syphilis, reports of second infection with this disease have been of comparative frequency. However, no report of a third infection has come to my notice, and a search of the available literature has failed to find such a report. Therefore this case seems of interest.

A. J., a man, aged 32, first consulted me, April 25, 1916, complaining of a sore on the penis. The family and past history, with the exception of the venereal history, were unimportant. He stated that he had had a sore on the penis in 1911, which was diagnosed clinically as a syphilitic chrancre and for which he received one intramuscular injection of arsphenamin. He denied any further evidences of or treatment for syphilis.

Examination revealed an eroded, circular lesion about 1 cm. in diameter on the dorsum of the penis about 2 or 3 cm. back of the corona. This lesion was a typical clinical chrancre, moderately indurated, and contained many spirochetes. No scar of the 1911 lesion could be found, although the patient stated that it was close to the present one. He further stated that the present lesion had begun with a small "pimple" about five days previously and about two weeks after a suspicious intercourse. No treatment had been instituted except that the patient had washed the lesion with hydrogen peroxid.

There was a moderate bilateral inguinal adenitis, but no other lymphatic glands could be found enlarged. The blood Wassermann reaction was negative, and the neurologic examination did not reveal any evidences of involvement of the central nervous system.

The patient was placed on moderately intensive antisyphilitic treatment, including weekly intravenous injections of arsphenamin and daily intramuscular injections of mercuric benzoate. In all, he received six injections of 0.4 gm. of the arsphenamin and thirty injections of 0.02 gm. of the mercury. During this time the penile lesion completely healed, leaving a small, white scar, while the Wassermann reaction remained constantly negative.

I did not see the patient again until May 10, 1923, when he once more came to me complaining of "a sore on the penis." Since I had seen him in 1916 he had received two courses of treatment similar to the one I had given him, one in December, 1916, and January, 1917, and one in January and February, 1918, although the Wassermann reaction on several occasions had remained negative. The last test that he had had was in the summer of 1920.

Since February, 1918, he had received no antisyphilitic treatment and had been in good health with the exception of a moderately severe attack of influenza in November, 1918.

Examination revealed a small, indurated, papular, eroded lesion about 0.5 cm. in diameter just to the right of the frenum, which contained many spirochetes. This lesion had been present for three days and had not been treated. The patient admitted a suspicious intercourse one month previous, although he had been married in 1920, and stated that he had been exceedingly careful to wash with a solution of potassium permanganate following the intercourse.

There was a slight, bilateral, inguinal adenitis; and one or two nodes in the cervical region could be palpated. The blood Wassermann reaction was negative, and the neurologic examination showed nothing suspicious of central nervous system involvement. However, after considerable urging, the patient consented to lumbar puncture. The spinal fluid was normal.

The patient was placed on antisyphilitic treatment, receiving eight intravenous injections of arsphenamin and thirty-five intramuscular injections of mercuric chlorid during a period of five weeks. The penile lesion healed rapidly, leaving only a faint scar.

COMMENT

That the infection which occurred in 1911 was syphilitic there seems only slight room for doubt. The clinical diagnosis was made by an experienced physician, and the lesion healed rapidly following the intramuscular injection of arsphenamin. Furthermore, it has been observed by me and by other syphilologists in the early days of the use of arsphenamin that one intramuscular injection of the drug has apparently effected a cure in undoubted syphilis. The second and third penile lesions in this case were unquestionably syphilitic, so we were dealing with a second infection and possibly with a third infection with *Spirochaeta pallida.*

TREATMENT OF PERTUSSIS WITH INTRAMUSCULAR INJECTION OF ETHER

Cleon C. Mason, M.D., Long Beach, Calif.

This is a preliminary report of twenty-six cases of pertussis treated by the deep intramuscular injection of ether as described by Genoese.[1] The technic as described has been followed except that slightly larger amounts of ether were used.

Of the twenty-six patients, with ages ranging from 6 months to 8 years, sixteen stopped coughing after eight injections and did not cough again; six were definitely benefited, i. e., the paroxysms became less frequent and less severe, and in four cases the course of the disease was not altered in any way.

Care was taken in order to be certain of the diagnosis, as a mild epidemic was prevailing; either other members of the family had pertussis or the child was having typical attacks of whooping, or there was in every case a definite history of exposure.

Of the sixteen patients in whom the cough stopped, none had whooped to exceed four days, six had whooped for the first time on the day the treatment was instituted, and the other ten had whooped from two to four days. Of the six patients definitely benefited two had vomited but had not whooped (later both of these patients developed a mild whoop), and the other four had been whooping for from four to seven days. Of the four not benefited, one had never whooped, but proceeded to develop a severe attack which massive doses of opiates did not alleviate; the other three had been whooping more than seven days.

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[2] Young, E. L., Jr.: Renal Hematuria as a Symptom of a Prenephritic Condition of the Kidneys, Tr. Am. Urol. A. **12**: 220, 1921; Surg., Gynec. & Obst. **31**: 478 (Nov.) 1920.

[1] Genoese, Giovanni: Policlinica, Rome **29**: 1105 (Aug. 21) 1922.

These patients were all seen in private practice, and in each instance the parents were told that the treatment was purely experimental and that no definite results could be promised. In a number of cases not included in the series, the parents failed to bring the child back after a first or second injection. The reports from the parents regarding the child's progress were apparently quite candid, varying from enthusiasm to quite the opposite.

The ether injections were made with a long, fine platinum needle, deep into the buttocks. Commercial anesthesia ether was used. In only one instance was there any local reaction. This child developed a large area of induration, which promptly subsided on the application of heat locally. After about three hours, as a rule, there are no evidences of local soreness.

The dosages used were: First day, 0.5 c.c., two injections; second day, 1 c.c., two injections; third day, 1.5 c.c., two injections; fourth day, 2 c.c., two injections; fifth day, 2 c.c., one injection; each day thereafter, the same amount as on the fifth day. These dosages were slightly reduced for children under one year. The injections did not seem especially painful. One girl of 7 said that they felt cold and stingy.

Within thirty minutes after the injection there was a decided odor of ether on the child's breath, which usually persisted for some three to six hours. Several specimens of urine, collected at hourly intervals after the injection, were examined, but in no instance were the acetone bodies found.

From the figures given it will be noted that 60 per cent. of the patients stopped coughing and were apparently cured; 24 per cent. were definitely benefited; 16 per cent. failed to respond or became definitely worse. In nearly all cases in which any good was accomplished, the parents remarked on the increased appetite and improved general condition.

If these figures can be verified by a larger series of observations in some institution where the patients can be carefully checked, and the results accurately controlled, it would appear that in the intramuscular injection of ether we have a treatment for pertussis which, although not wholly certain, will at least go farther in controlling the disease than either the opiates or the vaccines.

Recently, four additional cases were treated by the high rectal injections of 6 c.c of a 40 per cent. ether solution in olive oil. The injections were repeated every six hours. Two of these patients stopped coughing quite promptly, and two failed to respond. This method was employed in order that the treatment might be carried out at home; and, if a larger series proves its efficacy, it will make it much simpler of use and at the same time avoid the chief drawback to the method—the use of hypodermic injections.

It is quite obvious from the figures that the earlier the treatment is instituted, the greater the possibility of good results.

POSTVACCINAL CUTANEOUS REACTIONS

H. J. Templeton, M.D., Hiawatha, Utah

Mrs. C. W., aged 22, never previously vaccinated, was vaccinated during December, 1922, by her mother, a nurse in my employ. This was without my knowledge. The second day thereafter the patient applied to me to have a number of moles removed from her face and neck for cosmetic reasons. Eight or ten of these were easily removed at the first sitting by means of fulguration.

Two days later the patient came to me complaining that all of the areas that had been fulgurated itched and burned. The next day all these areas showed small papules. This led me to make a further investigation, in which I found that the vaccination which her mother had performed was taking nicely. Not only the original scarified area on the arm but also the fulgurated moles "took" at the same time. They all passed through the stages characteristic of a successful vaccination.

By extreme care, the marks on the face were kept small; but, even at that, they left small pock marks.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

TETANUS ANTITOXIN CONCENTRATED (See New and Nonofficial Remedies, 1923, p. 284).

Cutter Laboratory, Berkeley, Calif.

Tetanus Antitoxin for Human Use.—Marketed in syringes containing 1,500 and 5,000 units each.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxin-Antitoxin Mixture.—Each cubic centimeter represents 3 L+ doses of diphtheria toxin neutralized with sufficient antitoxin to conform to the toxicity requirements of the U. S. Public Health Service. Marketed in vials containing, respectively, 1 Cc. and 50 Cc., and in syringes containing one immunizing treatment (3 Cc.) with a sterile needle for each injection.

ANTI-ANTHRAX SERUM (See New and Nonofficial Remedies, 1923, p. 287).

Cutter Laboratory, Berkeley, Calif.

Anti-Anthrax Serum for Human Use.—Marketed in double-ended vials containing 50 Cc. for intravenous injection. Smaller amounts for injection into the tissues about the pustule can be removed and injected with a Luer or other suitable syringe.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1923, p. 294).

Cutter Laboratory, Berkeley, Calif.

Rabies Vaccine-Pasteur.—The virus is prepared according to the method of the Hygienic Laboratory of the U. S. Public Health Service. The cords are ground in a small amount of 50 per cent. glycerin and shipped daily. These emulsions are diluted by the physician at the time of injection in small individual dose syringes of sterile physiological *solution of sodium chloride that are furnished with the treatment.* The treatment consists of 21 daily injections.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1923, p. 323).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxin for the Schick Test.—Marketed in packages of two vials, one containing a definite volume of diphtheria toxin and the other containing sterile physiologic solution of sodium chloride with which the toxin is to be diluted before administration. The diluted toxin is of such a strength that 0.1 Cc. given intracutaneously constitutes a 1/50 M.L.D. There are approximately 50 test doses in each package.

CARBON TETRACHLORIDE MEDICINAL (See The Journal A. M. A., April 21, 1923, p. 1143).

Carbon Tetrachloride (Human Use)-P. D. & Co.—A brand of *carbon tetrachloride-N. N. R.* Supplied *only* in the form of capsules.

Parke, Davis & Co., Detroit, distributor. No U. S. patent or trademark.

Capsules Carbon Tetrachloride (Human Use)-P. D. & Co., 20 minims.

VERONAL (See New and Nonofficial Remedies, 1923, p. 63).

The following dosage form has been accepted:

Elixir of Veronal: Each fluid drachm contains veronal 2 grains in a menstruum containing alcohol 33.5 per cent.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

E. R. Squibb and Sons, New York.

Diphtheria Toxin-Antitoxin Mixture (New Formula)-Squibb.—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three vials, each vial contains 1 Cc. of the mixture; and in vials containing, respectively, 10 Cc. and 20 Cc. of the mixture.

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SATURDAY, DECEMBER 22, 1922

WHERE ARE THE BILE PIGMENTS FORMED?

For three quarters of a century it has been known that a pigment which can be crystallized in orange-colored rhombic plates occurs in old blood extravasations. This "hematoidin" of Virchow has long been regarded as identical with the pigment bilirubin, which is a normal constituent of human bile; and the relationship is one of the widely accepted evidences of the formation of the bile pigments from the hemoglobin of the blood. It is known from direct experiment that when bilirubin is introduced into the circulation it can be "picked out" by the liver and excreted into the bile. Consequently, it has long been a question whether the biliary pigments are formed elsewhere in the body and merely eliminated by the hepatic cells, or whether the latter actually have the capacity to produce bilirubin and its derivatives within their own substance. The answer to this question has an important bearing on the genesis of jaundice. If the bile pigments are regularly produced elsewhere than in the liver, it must be assumed that the symptoms of icterus are due to an inability of the hepatic parenchyma to excrete them in a normal fashion; whereas, on the hypothesis of an intrahepatic genesis of the pigment, the occurrence of jaundice may equally well be due to obstruction sufficient to stop the outflow of bile, which then enters the capillaries of the liver and also, to a lesser extent, the lymphatics.

Several years ago, American investigators gave a directive turn to the question by demonstrating that the change from circulating hemoglobin will take place as promptly in mammals from which the liver has been excluded from the circulation as in normal individuals. A recent writer [1] has remarked that for ten years these experiments have been widely regarded in all countries as an irrefutable proof that the liver is not necessary for the prompt transformation of circulating hemoglobin into bilirubin, even by investigators who have not been able to reconcile some of their own observations with such a view. A reinvestigation of the subject by Rich,[1] in the Department of Pathology at the Johns Hopkins University, has shown that the experiments which have led to the conclusion that circulating hemoglobin can be rapidly transformed into bilirubin outside the liver are not valid because the method employed—that of observing changes in animals with the so-called "head-thorax" circulation supposedly independent of the rest of the viscera—need not actually exclude the liver from the circulation. The presence of unsuspected collateral circulation must always be reckoned with. In the latest investigation the liver was not merely tied off from all obvious vascular connections but was actually extirpated, whereupon the fate of hemoglobin introduced into the blood stream was studied. Transformation to bilirubin was never observed under such conditions. Rich regards it as necessary, therefore, to abandon the recently adopted belief that there exists a facile and ready mechanism for the transformation of circulating blood pigment into bile pigment outside the liver, and to return to the old view that the transformation takes place normally only within the liver itself.

It will be appreciated that this conclusion is not without significance in relation to the process by which the chemical débris of the continually disintegrating erythrocytes of the blood is disposed of. The prevailing view on the normal fate of hemoglobin is that it is broken up into globin and hematin, the latter in turn yielding hematoidin—thrown off in the bile as bilirubin—and iron-containing materials of uncertain chemical constitution, which are retained. The facts are that a disintegration of red corpuscles takes place constantly, in sickness and in health, and that the body has often to meet new demands and situations thereby arising. The rest of our information is essentially speculation; and, as a recent reviewer [2] has cleverly commented, the reader will not fail to note that much of current theory on blood destruction attests to the theorist's abhorrence of a vacuum. It should be clearly emphasized, however, that the establishment of the liver as the chief factor in the genesis of bilirubin out of circulating hemoglobin does not preclude pigment production in the tissues under such unusual circumstances as are represented by extravasations of blood; nor does it confine the origin of bilirubin to the hepatic cells proper. As Rich has carefully pointed out, the sole function of the liver cells in regard to bilirubin may be an excretory one, and it may be the Kupffer cells—those peculiar vascular structures around which so much speculation has centered of late—that possess the function of converting hemoglobin into bile pigment. The "tempting advantages" of such a view championed by Eppinger [3] remain to be confirmed.

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[1] Rich, A. R.: Experimental Studies Concerning the Site of Origin of Bilirubin, Bull. Johns Hopkins Hosp. **34**: 321 (Oct.) 1923.

[2] Rous, Peyton: Destruction of the Red Blood Corpuscles in Health and Disease, Physiol. Rev. **3**: 75 (Jan.) 1923.

[3] Eppinger: Die Hepato-Lienalen Erkrankungen, Enzyklopädie der klinischen Medizin, Berlin, 1920.

THE DIFFICULTIES OF DIETARY REFORMS

The determination of the etiology of a disease, and the discovery of adequate means to prevent it, might be supposed to give assurance of its rapid disappearance. This is by no means always the case. When scientific knowledge runs counter to custom, individual or racial psychology, or economic or geographic conditions, its mandates do not always become established as readily as they might seem to deserve. An instance in practical illustration is afforded by the incidence of beriberi in the Far East. The relation of the disease to dietary deficiencies has been recognized for some time. In certain countries the most important single factor is admittedly the use of polished rice without adequate amounts of vitamin-bearing supplements. The danger would seem to be easily averted by the substitution of unpolished rice for the more modern highly milled product, by the more liberal inclusion of protective foods in the diet, or by a combination of these schemes. Nevertheless an expert[1] familiar with the local conditions has just reported that, although it has been known for twenty-five years that living on a regimen in which polished rice predominates is dangerous to health, while unpolished rice entirely protects against the possibility of the appearance of beriberi, every year over eastern Asia numerous cases of the disease are found in man.

This unfortunate condition is in part the outcome of the preference of the public for the nicely polished rice. The latter has the advantage of somewhat better keeping qualities, in contrast to the less milled product. Jansen[1] has pointed out that up to the present time the predominant part of the population of Java, where his experience has been gained, consists of people living "next to the land" who mill their own rice. The cereal is so pounded by them for use that only a part of the pericarp is removed. The remaining rice grain still contains considerable vitamin B—enough, apparently, to protect the population against a deficiency leading to beriberi. Now, however, as the Dutch East Indies are becoming changed from a rather exclusively agricultural country into a more or less industrial country, a great danger is almost certain to develop, if the population is not going to use other agricultural products besides rice. As Jansen argues, if Java is to be industrialized in the modern sense, much of the population will have neither time nor opportunity to "pound" its own rice.

Progress, which inevitably brings changes in its wake, often, as in this case, initiates unanticipated difficulties. It seems almost ridiculous to speak of the dangers of progress. We need to realize, however, that society is a complex organization, and that all parts and mechanisms need to be kept adjusted and attuned to one another. No one would wish any longer to eliminate the automobile or electrical transmission of power; yet each has introduced specific new dangers into the communities that enjoy the benefits. Coercion fails to bring the desired results in a country accustomed to democracy. Education seems to be the most promising measure of defense against hidden dangers. It is usually a slow process, in which the educator needs constant encouragement and support lest he waver from sheer weariness or despair. Medical history affords eloquent testimony of this.

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[1] Jansen, B. C. P.: On the Need of Anti-Beriberi-Vitamin of the Animal Organism and on the Amount of this Vitamin in Different Foodstuffs, Mededeelingen van den burgerlijken Geneeskundigen Dienst in Nederlandsch-Indië, Part I, p. 1, 1923.

THE COMMON COLD, AGAIN

The "common cold" is one of the commonest of diseases, and there are few about which so little of a definite character is known. From time to time there is a recrudescence of theories as to the causes of common colds; then comes the period of some special form of therapeutic attacks based on the newest hypothesis; whereupon the vaunted treatment falls into desuetude. It is unfortunately easy to secure "evidences" of efficacy for all manner of proposed reliefs for mild, self-limiting disorders. The cure follows; *post hoc ergo propter hoc.* The extreme enthusiasts for the alleged microbial causation of the common cold have no ear for other possible factors in its incidence; and consequently they must marshal all the antibacterial forces of medicine to combat the cold. Sometimes the superior direction is given to isolation; or again to local antisepsis, or finally to vaccine therapy. It is, however, admittedly a hidden foe that they are trying to subdue. Whether it may appear in the guise of a simple bacillus or in the more evasive form of a filtrable virus no one has really discovered. The cocksureness of the advocates of the theory of infection may be illustrated by a quotation from a recent popular estimate of the subject. "This much we are certain of already: that the majority of so-called 'colds' have little or nothing to do with exposure to a low temperature, that they are entirely misnamed, and that a better term for them would be 'fouls.' In fact, this proportion can be clearly and definitely proved and traced as infections spreading from one victim to another. The best place to catch them is not out-of-doors, or even in drafty hallways, but in close, stuffy, infected hotel bedrooms, sleeping cars, churches, and theaters."[1]

Let us admit promptly and frankly that it is not difficult to defend the infection hypothesis; and we may perhaps recall without prejudice that it was once defended for beriberi and for pellagra with comparative success. But a malady that entails so much human discomfort, gives such dangerous opportunities to secondary invasions, and interferes so often with personal plans as does the common cold deserves critical study. It cannot be dispelled or averted by offhand pronouncements. Perhaps it will be worth while to listen to an occasional reactionary comment, such as Jordan[2] and his associates at Chicago have recently expressed. Statistical and laboratory data gathered by them from more than two thousand university students in different parts of the United States indicate to these investigators that the common cold is not a simple type of infection, perhaps in some instances not even an infectious process at all. They assert that numerous factors are undoubtedly concerned in the production of a cold; and their evidence does not support the view that a cold is always due primarily to the entrance of some virus from without the body. On the contrary, it appears to them that internal body changes may be the more important factors. These changes are in turn associated closely with outside influences. This general conclusion is not out of harmony with the recently reported experiments of Olitsky and McCartney[3] at the Rockefeller Institute for Medical Research, who have apparently produced typical symptoms in healthy persons by using as an incitant a filtrable agent obtainable from the nasopharyngeal washings of patients during the very early hours of the onset of a cold. For they also stated that transmission failed in cases in which the colds were caused by exposure to the elements, or chilling the body, and not by definite contact with other cases of common colds.

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[1] Hutchinson, Woods: Preventable Diseases, Boston, Houghton, Mifflin Company.

The Chicago bacteriologists have not hesitated to jeopardize the security of some further beliefs of the satisfied hygienists. "Resistance building" has been a favorite tenet in the prophylactic doctrine. The cultivation of an excellent physical condition through exercise, the habit of sleeping with open windows amid all rigors of climate, the frequent use of the cold bath—these are some of the practices expected to lessen the liability to respiratory disorders. Yet the Chicago statistics suggest that exposure to cold and the other lauded preventive measures are by no means as successful as they are supposed to be; nor do the data show that operations on the nose or throat result in marked reduction in the frequency of colds. Various investigators in recent years have failed to find any one species or group of bacteria to predominate in the upper respiratory tract during a cold. We may repeat our own earlier statement[3] that evidently there are colds and colds. To this we may now add the conservative conclusions of Jordan, Norton and Sharp.[2] Whether or not a cold is the result of a specific infectious process in unknown. It is clear, however, that outside influences, particularly those involving the chilling of the body, may serve, they say, to induce a cold, even if these influences cannot be regarded as the most important etiologic factors.

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[2] Jordan, E. O.; Norton, J. F., and Sharp, W. B.: The Common Cold, J. Infect. Dis. **33**: 416 (Nov.) 1923.

[3] Olitsky, P. K., and McCartney, J. E.: Studies on the Nasopharyngeal Secretions from Patients with Common Colds, J. Exper. Med. **38**: 427 (Oct.) 1923; The Common Cold, editorial, J. A. M. A. **81**: 1697 (Nov. 17) 1923.

Current Comment

"A" FORMULA OR "THE" FORMULA?

A quarter of a century ago, when the proprietary evil in the United States was at its worst, a common piece of advertising deceit was that of the fake formula. Knowing that reputable physicians will not prescribe secret remedies, some proprietary medicine concerns resorted to giving what purported to be a formula. On its face, the "formula" was impressive—at least to one not an expert in chemistry. Actually, such formulas were pure fabrications, chemically impossible. The real composition was seldom divulged by such feints at honesty. After the American Medical Association created its own chemical laboratory, the Association chemists demonstrated repeatedly the absurdity of the seriocomic chemistry of even some of the better grade of pharmaceutic manufacturers. It was not long before the crude chemistry and cruder dishonesty of pharmaceutic concerns began to disappear. Yet today there are still a few firms that endeavor to lend plausibility to their wares by resurrecting old methods. On another page[1] is a report of the Council on Pharmacy and Chemistry on Gly-So-Iodonate. The product is exploited to the profession as "the bactericide the medical world has searched for since the days of Lister." A "formula," both qualitative and quantitative, appears on the label. Chemically, the formula is absurd. As the report shows, some of the "declared ingredients" are obviously incompatible, while the chemical laboratory has found that other ingredients are not present in the amounts claimed. Physicians are being urged to use this unscientific mixture. The favorite method of approach, however, seems to be through industrial concerns; most of the inquiries regarding the product have been from physicians connected with industrial concerns seeking advice in order to present it to the respective business managers. Large employers of labor who seek to protect their employees from infection hazards should be given the facts regarding the probable value of vaunted proprietary germicidal agents. From a standpoint both of economy and of rational procedure, it is evident that there are plenty of such agents which can be used to better advantage than this nostrum. Mercuric chlorid is still a favorite, and convenient size tablets are listed by all good pharmaceutic houses; and, should the coagulating action of mercuric chlorid be undesirable, there are on the market accepted brands of potassium mercuric iodid[2] (which may be considered the active ingredient in Gly-So-Iodonate though not declared); there are also the chlorin antiseptics,[3] the tried and true official tincture of iodin—and a host of others. Of course, the choice of an antiseptic depends on the condition for which it is to be used. Certain it is, however, there is no scientific basis for mixing antiseptics in any such hodgepodge manner as is exemplified by the irrational and mislabeled Gly-So-Iodonate.

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[1] Gly-So-Iodonate: Report of the Council on Pharmacy and Chemistry, this issue, page 2132.

[2] The following brands are described in New and Nonofficial Remedies, 1923: Mercury and Potassasium Iodide, Merck; Mercury and Potassium Iodid, P. W. R.; Kalmerid Germicidal Tablets Potassium Mercuric Iodide, Davis and Geck. Solutions can also be prepared extemporaneously: mercuric chlorid, 0.06 gm.; potassium iodid, 0.6 gm.; water to make 100 c.c

[3] Surgical Solution of Chlorinated Soda, N. N. R. (Dakin's Solution) may be prepared according to methods described in N. N. R., or one of the accepted proprietary sodium hypochlorite solutions may be employed. There are also a number of accepted brands of Chloramine-T and Dichloramine-T described in New and Nonofficial Remedies, 1923.

THE DIMENSIONS OF THE HUMAN HAND

Physique is in many respects an expression of heredity. This biologic factor enters into the organism throughout all its stages of development. The egg, Conklin[1] writes, is not one being and the embryo another, and the adult a third, but the egg of a human being is a human being in the one-celled stage of development, and the characteristics of the adult develop out of the egg and are not in some mysterious way grafted on it or transmitted to it. On the other hand, there can no longer be any question that environmental factors also affect the make-up of the individual as well as such features of his performance as are due to inherited "constitution." Latterly, the rôle of food as a nonhereditary influence in determining physical status has received considerable attention. Rational exercise has long been realized to influence development in some instances to the extent of producing permanent effects. Special vocations may bring about a similar result, though it cannot always be differentiated easily from possible heredity influences. An interesting illustration has arisen lately as an outcome of a large number of measurements of the hands of persons engaged in various occupations. Brezina and Lebzelter[2] of Vienna have observed that vocations involving manual labor affect the breadth and thickness of the hand, but not its length. The variations in the latter seem to be associated with racial and other inherited influences that are in no way connected with industrial factors. The two-dimensional enlargement of the hands of persons engaged in manual tasks calling for considerable muscular effort is in the nature of a functional hypertrophy involving the skin and contractile tissues. Whether the bones also become enlarged has not been ascertained. It is significant to learn that in so small a part as the human hand the respective effects of heredity and vocation can be distinguished to some extent.

VACCINATION WITH BACTERIUM PNEUMOSINTES

The rather impressive work of Olitsky and Gates with the micro-organism that they have found in influenza and have named *Bacterium pneumosintes* has naturally called for confirmatory and supplementary experimentation. Particularly does the observation of antibody formation in inoculated animals suggest human vaccination as a test of the specific relationship of this organism to influenza. As a preliminary to such a test, Olitsky and Gates[3] injected thirteen volunteers subcutaneously with a vaccine prepared from two strains of *B. pneumosintes*. Local reactions of mild and transitory character were noted, while constitutional reactions were observed infrequently. A transitory leukocytosis was produced by the vaccination, and specific agglutinins appeared in the blood serum. The innocuous character of the reaction encouraged definite experimentation on a larger scale, and a cooperative investigation was carried out on volunteers from the army at Fort Myer, Va., and at Governors Island, N. Y. A recent report has been made of the findings.[4] The conditions at Fort Myer were considered favorable, as a definite epidemic of influenza occurred and there was a control group. In the age group 20-24 there were thirty-one cases in the 183 unvaccinated controls (16.8 per cent.) and thirty-eight cases in 202 vaccinated persons (18.8 per cent.). At Governors Island there was no epidemic in either group, although clinical influenza occurred on the island. In the island groups under observation there were only two cases among the controls and five among the vaccinated. Some of the latter were considered quite typical, clinically. The interesting observations set forth in Major Nichols' article do not indicate that vaccination with *B. pneumosintes* confers any decisive protection against the present-day disease that goes by the name of clinical influenza. As is well known, attempts at transmission of influenza have been made with nasal secretions, with pure cultures of *Bacillus influenzae* and with other organisms, but never, so far as we know, with *B. pneumosintes*. Possibly such experiments would throw further light on any etiologic relationship of this organism.

TEA VERSUS COFFEE: AN EMBARRASSING CHOICE

Many of the so-called "stimulants" that have found widespread use by man have recently been the subject of critical consideration. Fisher and Fisk, in "How to Live," state without reservation that the best rule for those who wish to attain the highest physical and mental efficiency is total abstinence from all substances that contain poisons, including spirits, wine, beer, tobacco, and even coffee and tea. Not a few persons among the millions of our population evidently prefer to "take a chance" on the "milder" sorts of beverages, among which tea and coffee are usually classed. The same writers that prepared the "total abstinence" dictum quoted admit that the exact extent to which the "milder poisons" are injurious has not yet been scientifically settled. Both tea and coffee are known to contain the alkaloid caffein. Furthermore, there are persons who still declare that the actions of tea and coffee on the nervous system are so unlike that the effects cannot be explained by their caffein content alone. A decision on this point at least is now available. Investigations by the hygienist Lehmann[5] at Würzburg have shown that the exhilaration or wakefulness, the diuresis and the circulatory manifestations depend primarily on the dose of caffein ingested, whether it is derived from tea or from coffee. Evidently the choice between these is analogous to that between chocolate cream drops and hocolate caramels, which has puzzled many urchas

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[1] Conklin, E. G.: Heredity and Environment, Princeton University Press, 1917, p. 108.

[2] Brezina, E., and Lebzelter, V.: Ueber die Dimensionen der Hand bei verschiedenen Berufen, Arch. f. Hyg. **92**: 53, 1923.

[3] Olitsky, P. K., and Gates, F. L.: J. Exper. Med. **37**: 471 (April) 1923.

[4] Nichols, H. J.: Army .

[5] Lehmann, K. B., and .
die Wirkung von Kaffee und

Association News

OFFICIAL STATEMENT ON MEDICAL LICENSURE SCANDAL

Executive Meeting of Board of Trustees Issues Public Announcement

At the meeting of the executive committee of the Board of Trustees held December 12, it was decided to issue a statement for the public on the position of the American Medical Association relative to the recent scandal in medical licensure. In accordance with this action, the committee has issued the following statement to the press:

For more than twenty years, the attention of the public has been regularly directed, in official publications of the Association, to the evils from which the present scandal arose. The existence of low grade medical schools which refused to raise their standards, which refused to permit inspection and which refused even to submit lists of their students has been regularly noted. The dangers of multiple licensing boards in certain states which issued permits to practice to men who could not qualify for or successfully pass the regular boards have also been made the subject of warning statements. Since 1918, The Journal of the American Medical Association has published annually the fact that the Connecticut and Arkansas eclectic licensing boards were apparently servin as clearing houses for low grade institutions in Misd to. In 1920, The Journal pointed out that Connecticut, through its eclectic board, was licensing men who had not studied in eclectic medical schools, and even worse, was licensing some men who apparently had not completed a medical course in any school. The American Medical Association is a body which has no punitive powers. It could not arrest and prosecute; it could only point out to state officials the festering evils which required their official attention. Nevertheless, public officials have consistently disregarded these announcements until the sensational publicity accorded an exposé by a St. Louis newspaper forced the matter on their attention.

The statement of a man under indictment in connection with diploma frauds in Missouri, that there are more than 25,000 physicians in the United States practicing with false credentials has been made the subject of numerous editorials, in which the medical profession has been urged to keep these impostors from deluding the public. At the headquarters of the American Medical Association is a card index which contains a card for every man licensed to practice medicine in the United States. Through this card index, and through its records of the men who attend medical schools, the Association is able to say positively that the number of medical impostors and poorly qualified physicians does not even approximate 25,000. During the past eight years, not more than 2,500 men, who have been given diplomas by low grade medical schools, have received state licenses.

There are today five medical schools in the United States which are not up to the high standard of the remaining seventy-six. If these schools are forced to raise their requirements or else to discontinue, the public will be assured that no men will be graduated in medicine who are not qualified to appear for licensure. If the state licensing boards will then admit to their examinations only those who are qualified, the public will have assurance that any man who can present the license of the state examining board is a properly qualified physician. The existence of multiple licensing boards in certain states, which permit men not qualified for the regular board to pass certain special boards, is a constant menace. Finally, the public will not be safe from the medical impostor until the police power of the state is ever alert to search out and prosecute the man who is practicing medicine without a license.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Chiropractor Fined.—Judge Coleman fined Dwight L. Evans, a chiropractor of Anniston, $100 and costs, November 30, on a charge of practicing medicine without a license, according to reports.

Personal.—Dr. James R. Bean, director of the Birmingham and Jefferson County health laboratory, has accepted the position of director of the public health laboratories of Savannah, Ga.——Dr. Frank W. Brandon has been appointed superintendent of the Wesley Memorial Hospital, Montgomery.

COLORADO

Hospital News.—The Beth Israel Hospital, Denver, was formally dedicated, December 2. This, the second unit of Jewish charitable work in Denver undertaken by Beth Israel, adjoins the Home for Aged Jewish People, opened a few months ago. Unlike the home, the hospital is nonsectarian. Ludwig H. Guldman gave $50,000 toward the building. Every room in the institution has been endowed as a memorial by various donors. Dr. Haskell Cohen will head the medical staff.

DISTRICT OF COLUMBIA

Clinics Opened.—Under the auspices of the Woman's Welfare Association, a clinic for the control of cancer was opened at the Social Service House, Washington, at 2 p. m., December 4, and at 4 o'clock a clinic for asthma sufferers was inaugurated. Until further notice these clinics will be held at these hours Tuesday afternoons. A mental hygiene clinic was inaugurated, December 6. The cancer clinic has no facilities for the treatment of inoperable cases. It will be a clearing house for those who need treatment.

FLORIDA

University News.—A college of pharmacy has recently been opened at the University of Florida with an enrolment of nearly fifty students. Professor Townes R. Leigh, head of the department of chemistry in the College of Arts and Sciences, is director of the new department. Two courses are offered; a two year course leading to the degree of pharmaceutical chemist and a four year course leading to the degree of B.S. in pharmacy.

Annual Antimosquito Conference.—Delegates representing twenty-seven communities of the state in which there are now programs for the eradication of mosquitoes attended the annual convention of the Florida Anti-Mosquito Association in Barto, December 6. George W. Simons, chief sanitary engineer and secretary of the association, opened the meeting, and Dr. J. Y. Porter, Key West, former state health officer, presided. The Rockefeller Foundation films on mosquito control and hookworm were shown.

Check-Up of Quacks.—As the result of investigations covering more than two years, during which hundreds of available records were checked, members of the state board of medical examiners are preparing to proceed against "diploma mill" physicians operating in Florida. According to reports, the governor demanded the reports of Dr. George A. Munch, Tampa, secretary of the eclectic board, several months ago which were refused him. Dr. Munch has now left town, it is said, for a month.——In 1919, a Birmingham, Ala., lithographing house executed an order for a batch of Florida Eclectic Board of Medical Examiners' licenses. Officers who were serving on that board at that time deny any knowledge of placing such an order. In 1917, Dr. V. K. Jindra, Jacksonville, was convicted of a conspiracy to sell a Florida medical license. He is now in prison.——In 1922 the board apprehended Dr. E. Wadge Page, a "diploma mill" graduate, then practicing in Tampa. He left the city and was recently involved in a will forgery case, according to reports.——The public has been urged to cooperate in showing up quacks and to ask alleged physicians to show their diplomas before accepting treatment from them. The medical society of St. Petersburg has decided to advertise the names of the members of the society, to inform the public where they safely may go for medical attendance.

ILLINOIS

Demonstrations Before Medical Society.—Drs. Ralph W. Nauss and R. C. Cook of the state department of public health recently gave a demonstration of Schick testing and smallpox vaccination before the Hancock County Medical Society at Carthage. Lantern slides were also shown. Dr. Nauss conducted a similar demonstration in Galesburg before the Knox County Medical Society, recently.

Society News.—The North Central Illinois Medical Association celebrated its fiftieth anniversary at Streator, December 4. Dr. Roy Sexton presided. The counties of Bureau, DeKalb, Lee, LaSalle, Livingston, Marshall, Putnam, Whiteside and Woodford are included in the society. Drs. Elven J. Berkheiser, Alfred A. Strauss and Edward H. Ochsner, all of Chicago, and Dr. James W. Pettit, Ottawa, gave addresses.

Measles and Diphtheria at Rock Island.—An epidemic of measles at Rock Island, involving 280 cases since December 1, has been complicated by an outbreak of diphtheria. It is reported that seven deaths have resulted among children from diphtheria preceded in each case by measles. A district health superintendent and two bacteriologists have been assigned to duty in Rock Island by the state department of health. Nineteen cases of diphtheria have been reported from Rock Island for the first fifteen days in December.

Chicago

University Donation.—Mrs. Montgomery Ward has donated $3,000,000 to be used for a medical and dental school on the new McKinlock Campus on Chicago Avenue for Northwestern University Medical School. The gift is a memorial to her husband and will be known as the Montgomery Ward Memorial.

Medical School Not Recognized.—An official statement from the Illinois Department of Registration and Education states that the Chicago Medical School was removed from the accredited list several months ago and has not been reinstated, "nor has any promise been made to any one that any such action is contemplated."

INDIANA

Typhoid Epidemic.—According to reports the recent epidemic of typhoid fever in Fort Wayne was caused by pollution from the Maumee River when a check valve connecting the city water with the Pennsylvania Railroad shops failed to operate and allowed the seepage of river water in the city mains.

Society News.—At the annual meeting of the Fort Wayne Medical Society in Fort Wayne, December 4, Dr. John H. Gilpin was elected president; Dr. Willis W. Carey, vice president; Dr. Donald D. Johnston, secretary, and Dr. Homer E. Glock, treasurer.——Dr. James L. Wilson was elected president of the St. Joseph County Medical Society at the annual meeting in South Bend, December 4. Other officers chosen were: Dr. George J. Geisler, vice president, and Dr. Richard B. Dugdale, secretary-treasurer.

IOWA

Society News.—At a special meeting of the Clinton Medical Society, December 13, the following addresses were read: Dr. Harry Mock, Chicago, "Reconstructive Surgery"; Dr. Edwin Miller, Chicago, "Late Ulnar Nerve Palsy," and Dr. George H. Coleman, Chicago, "Peritoneal Pain Sense."

KENTUCKY

Dr. Pusey to Address Meeting.—Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, will address the Muldraugh Hill Society in Elizabeth, December 29, at the formal opening of the Brown-Pusey House.

Hospital News.—A new building will be erected for the Evangelical Hospital, Louisville, at a cost of $200,000. Construction work will be started in the spring.——The Cumberland Sanatorium, Somerset, has been discontinued.——A four-story and basement addition will be erected at the Booth Memorial Hospital, Covington. The hospital is owned by the Salvation Army.——Excavation has been completed for the foundation of the new $75,000 hospital to be known as Pennington General Hospital, London.——A new institution to be known as the Kentucky Memorial Hospital, Whitesburgh, will be erected in Whitesburgh in the near future at a cost of approximately $100,000.——A new tuberculosis sanatorium will be built under the auspices of the Kenton County Tuberculosis Association, at Covington. Plans call for four or five buildings to be erected at a cost of $125,000.

MARYLAND

Founders' Day.—Founders' Day at the University of Maryland was celebrated, December 19, by the Alumni Association of the Medical School, with a banquet at the Hotel Rennert. The membership of the association consists now of graduates of the old Baltimore Medical College, the College of Physicians and Surgeons, and the University of Maryland Medical School.

Narcotic Bill Considered.—Dr. John S. Fulton, state commissioner of health, called a meeting, December 10, to consider the advisability of enacting a state narcotic law to harmonize with the federal narcotic act. The meeting was attended by Dr. John S. Fulton, A. L. Sullivan and Robert L. Swain, commissioner and assistant commissioner of the bureau of food and drugs; Dr. T. O. Heatwole, dean of the dental department, University of Maryland; Dr. E. F. Kelly, member of the state board of health; Dr. Charles L. Meyers, president of the Maryland Pharmaceutical Association; Dr. B. R. Rhees, representing the federal government; Dr. William T. Watson; Dr. A. P. Herring, commissioner of mental hygiene of Maryland; George E. Henry, chief inspector of police; Sherlock Swann, former police commissioner, and several wholesale druggists.

MASSACHUSETTS

Joint Medical Meeting.—A joint meeting and dinner of the Essex South and Essex North District Medical societies was held at the Essex Sanatorium, Middleton, December 7. Dr. Edward O. Otis presided. Dr. John B. Hawes, II, Boston, spoke on "Pulmonary Tuberculosis, Diagnosis and Treatment."

Prison for Dr. Robb.—Dr. William M. Robb, Boston, was sentenced to from five to seven years in the state prison, December 11, according to reports. Robb pleaded guilty, it is said, to performing an operation on Mrs. Wolschendorf, whose body was found in the Merrimack River in September.

Research on Infantile Paralysis.—Work to determine the cause of infantile paralysis and to prepare, if possible, a remedy, will be undertaken by the Harvard University Infantile Paralysis Commission, it was announced, December 9. The research work will be conducted at the Harvard Medical School at an annual cost of about $120,000. In 1916 an epidemic of infantile paralysis in Boston left 2,000 cripples in its wake, it is said, and in 1920, 696.

MICHIGAN

Portrait Presented.—The faculty of the Detroit College of Medicine and Surgery presented the board of education of Detroit with a portrait of Dr. Ernest Keys Cullen, who died in July, 1922. Dr. Cullen formerly was professor of gynecology at the medical school, and attending gynecologist at the Receiving and Harper hospitals, and a brother of Prof. Thomas Cullen of Johns Hopkins University.

Prenatal Work in Detroit.—At the prenatal clinic in Detroit 1,599 women were delivered in 1922 without one death from toxemia. The total mortality rate of these women was 3.1 per thousand. In the entire [illegible] Detroit [illegible] 27,277 women were confined with a [illegible] te of [illegible] our incidence of stillbirths was 53 per thousand. This is a saving of 28 lives per thousand in babies under 1 month of age, apparently the result of prenatal care.

MINNESOTA

Society News.—At the annual meeting of the St. Louis County Medical Society, recently, Dr. Thomas R. Martin, Duluth, was elected president, and Dr. Fredolph H. Magney, Duluth, secretary-treasurer. A banquet preceded the meeting. ——A special meeting of the Hennepin County Medical Society was called, December 17, in Minneapolis to discuss the relationship of community health agencies to the medical profession and the advisability of giving a health exposition.

University Notes.—At a meeting of the administrative board of the University of Minnesota Medical School, Minneapolis, November 6, the following nominations were approved and recommended: Dr. Harold J. Goss as instructor in ophthalmology and otolaryngology; Dr. Joseph F. Bicek, assistant in obstetrics and gynecology; Dr. Christian A. Fjelstad, assistant in ophthalmology and otolaryngology; Eula B. Butzerin as instructor and director of public health nursing, and Misses Haupt and Fuller as instructors in preventive medicine and public health.

Hospital News.—The new Ashbury Nurses Home, Minneapolis, was dedicated in November. The institution was built at an outlay of more than $300,000. Part of the building will be used for a hospital with a capacity of 120 beds.——The new St. James' Hospital, St. James, was formerly dedicated, October 9.——The Immanuel Hospital Association plans a hospital building for Mankato which will be erected at a cost of $150,000.——A hospital for epileptics is planned for Cambridge to be erected at a cost of $40,000.——The Children's Hospital, Inc., of St. Paul, will be formally opened, Jan. 1, 1924. The hospital, which will occupy temporary quarters on Smith Avenue, is nonsectarian, and will receive children from birth to adolescence. Dr. Walter R. Ramsey will be chief of staff.

MISSOURI

Banquet for Dr. Wilbur.—Dr. Ray Lyman Wilbur, President of the American Medical Association and president of Stanford University, Palo Alto, Calif., was guest of honor at a banquet given by the Kansas City Academy of Medicine at the Hotel Baltimore, October 13.

Hospital News.—The new surgical unit recently added to the group of buildings comprising State Hospital No. 2, St. Joseph, was formally opened, October 3. It has a capacity of forty beds and was erected at an approximate cost of $125,000. Most of the furnishings were donated by patients and attendants.

MONTANA

Yellowstone Valley Medical Association.—At the annual meeting of the association, in Billings, December 1, Dr. Wilson J. Perry was elected president; Dr. James D. Barrett, vice president; Dr. Walter F. Weedman, secretary, and Dr. John H. Graham, treasurer.

NEBRASKA

Social Service Unit Organized.—A medical social service department has been organized at the University of Nebraska College of Medicine, Omaha, with Dr. J. Jay Keegan in charge of the dispensary.

Hospital News.—It is announced that the possession of the Campbell Hospital, Norfolk, will pass to the Lutheran Hospital board of North Nebraska.——The Carothers Hospital, a fifty-four room, four-story building at Broken Bow, is completed.——The Douglas County commissioners have let the contract for the erection of a $50,000 county hospital building at Omaha.

NEW JERSEY

Inoculation of Dogs Against Rabies.—Health Officer Craster of Newark states that fifty-five dogs have gone mad in Newark and Essex County during the year and that rabies is prevalent in that area. This is twice the number reported for other years. December 4, Dr. Craster and Dr. Richard N. Connolly, city bacteriologist and the health department veterinarian appeared before the board of health to urge the compulsory inoculation of all dogs against rabies.

Hospital News.—A series of clinics was recently held in the Jersey City Hospital to which all physicians in the vicinity were invited. It is the intention to make this hospital a teaching center for physicians and the laity. Dr. Haven Emerson recently addressed a meeting there on "Private Responsibility for Health."——A ten day campaign was recently launched to raise $400,000 for St. Elizabeth's Hospital, Elizabeth. More than $450,000 was subscribed.——St. Paul's Deaconess Home and Hospital was dedicated recently at Pompton Lakes. Drs. William S. Colfax, Clarence L. Vreeland and David N. Shippee comprise the medical staff.

NEW YORK

Scarlet Fever Epidemic.—An epidemic of scarlet fever is reported from Oyster Bay and Bayville, L. I. The health officer claims the disease has spread because of failure to regard quarantine regulations.

New York City

New Medical Club.—The Central Medical Club has been organized in New York City with Dr. Arthur I. Blau as secretary. Meetings will be held the first Friday in the month.

Dr. Emmet Bequeaths Estate.—The will of Dr. John Duncan Emmet of New York and Morristown, N. J., leaves $450,000 to be divided between the Little Sisters of the Poor and the Roman Catholic Society for the Propagation of the Faith. A trust fund of $50,000 will also go to these societies at the death of the beneficiary.

Kings County Drive Against Quacks.—In the drive against fake dental and medical practitioners, Dr. Charles A. Gordon, president of the Medical Society of the County of Kings, announced after a meeting of the executive council of the society, that full endorsement of the district attorney's plans was voiced and that it was resolved to cooperate with him in every way.

Hospital to Sell Building.—St. Christopher's Hospital for Babies, whose work was recently transferred to the Brooklyn Hospital, has obtained permission from the supreme court to sell its property to the Brooklyn Home for Blind, Crippled and Defective Children for $100,000. This sum will be used to pay the St. Christopher Hospital debts; any remainder will go to the Brooklyn Hospital.

Class Reunion.—The class of 1898 of the College of Physicians and Surgeons, of which Dr. Charlton Wallace is president, held its twenty-fifth annual dinner at the Hotel Commodore, December 8, with seventy-nine members attending. Dr. T. S. Arbuthnot of Pittsburgh was toastmaster. The speakers included Dr. John J. Collins, Dr. Franklin A. Dorman, Dr. Malcolm Goodridge, Dr. Charles F. Hunt, Dr. Herman Grazer, Dr. Samuel J. Kopetzky, Dr. D. J. Lee and Dr. Herman Schwarz.

Post-Graduate Medical School and Hospital Lectures.—The course of free lectures for the medical profession at the Post-Graduate Medical School and Hospital is being continued on Friday afternoons at 5 o'clock. The following lectures are scheduled: January 4, "The Clinical Use of Basal Metabolism," Dr. Cameron V. Bailey; January 11, "Radium Therapy," Dr. George S. Willis; January 18, "A Plea for a Broader Conception of Dermatology," Dr. Henry H. Whitehouse; January 25, "Reconstruction Surgery (with lantern slides and moving pictures)," Dr. Fred H. Albee.

NORTH CAROLINA

Aged Physician Fined.—It is reported that Dr. Edward H. Jones, 76 year old physician of Raleigh, charged with violating the Harrison Narcotic Law, was released by United States Judge Connor, November 28, on payment of a fine of $400 and cancellation of his permit to prescribe narcotics.

OHIO

Crile Research Fellowship.—The Medical School of Western Reserve University, Cleveland, announces the availability of a "Crile Research Fellowship" for graduates in medicine, or others qualified, who desire to do research work in the medical school. The salary is $1,500 per annum and the candidate is eligible for reappointment at $2,000 the second year. Inquiries should be addressed to the committee through Prof. Carl J. Wiggers.

Memorial to Dr. Dudley P. Allen.—Mrs. F. F. Prentiss has donated the funds for a new medical library—a memorial to Dr. Dudley P. Allen who died in 1915—which will be erected on a site given by Western Reserve University at Euclid Avenue and Adelbert Road. Dr. Allen was for many years professor of surgery at Western Reserve University School

GENERAL

The Honorary President of Gorgas Institute.—President Coolidge has accepted the honorary presidency of the Gorgas Memorial Institute of Tropical and Preventive Medicine for which the cornerstone was recently laid at Panama City. The drive to collect the $5,000,000 needed for this work will start Jan. 1, 1924.

Southern Surgical Election.—At the recent meeting of the Southern Surgical Association, at White Sulphur Springs, W. Va., the following officers were elected: president, Dr. Le Grand Guerry, Columbia, S. C.; vice presidents, Drs. James M. Mason, Birmingham, Ala., and John T. Moore, Houston, Texas; secretary, Dr. Hubert A. Royster, Raleigh, N. C., and treasurer, Dr. Urban Maes, New Orleans. The next meeting will be held at Charleston, S. C., Dec. 9-10-11, 1924.

Unified Reports of Industrial Accidents.—A meeting was held in Washington, D. C., December 3, between the federal commissioner of labor statistics and representatives of labor and industrial accident commissions from twelve states to make plans for unified reports of industrial accidents. Secretary Davis addressed the conference. It was the impression of those in attendance that accidents in industry are showing a tendency to increase. In order to arrive at a national view of the facts, it was said to be necessary to unify accident reporting methods.

National Health Series.—In order to make available to the general public at moderate prices authoritative books on all phases of human health, the National Health Council has arranged with the Funk & Wagnalls Company for the publication of the National Health Series. It will contain twenty books of about 18,000 words each written by the leading health authorities of the country. The series of twenty will be $6, or 30 cents each. They will be issued in sets of five, the first set appearing about the end of this month (The Journal, November 3, p. 1532).

Proposed Amendment to Food Law.—An amendment to the federal Food and Drugs Act, to require printing on the labels of all packages or containers of foods, the name of the manufacturer, canner or packer, is proposed in a bill introduced in the House of Representatives by Congressman Albert Johnson of Washington. The proposed legislation applies only to containers of articles of food and does not apply to drugs. There are many food products, according to Congressman Johnson, sold to the public in containers which do not show the name of the manufacturer or packer, nor his address. The proposed legislation would require such information to be plainly marked on the outside of the package.

Women Admitted to Soldiers' Homes.—As mentioned before in The Journal the Secretary of War has authorized that a separate building be set aside at the National Home for Disabled Volunteer Soldiers, Danville, Ill., for the care of ex-service women who are entitled to admission to the home and in need of general hospital treatment, and that separate facilities be set aside at the Northwestern Branch National Home for Disabled Volunteer Soldiers, Milwaukee, for such ex-service women as are in need of treatment for tuberculosis. The board has visited the homes at Danville and Milwaukee where buildings have been tentatively selected for the housing of the women. This includes women of the Army Nurse corps, the Navy Nurse Corps, *yeomanettes and marionettes.*

National Immigration Conference.—An immigration conference was held at the Hotel Astor, New York, December 14-15 (the first of its kind ever held in the United States) under the auspices of the National Industrial Conference Board. Representatives of business organizations, departments of the government, public and social service organizations and delegates of several foreign governments attended the sessions. The meetings were open to the public. Some questions discussed were:

> "Shall the per centum act which expires by limitation on June 30, 1924, be retained by extending the period of its operation?"
>
> "Shall it be superseded by new legislation, and if so, by what kind?"
>
> "Shall an investigatory commission be appointed by the President under congressional resolution to investigate and report?"
>
> "Shall the act be retained with amendments in respect to percentage restriction?"

Bill to Prevent Oil Pollution.—A bill "To Improve the Navigability of the Waters of the United States by Preventing Oil Pollution Thereof" has been introduced in the House of Representatives by Congressman Isaac Bacharach of Atlantic City, N. J. The bill is similar in its nature to legislation considered at the last session of Congress, and makes it a penal offense to discharge oil or refuse of any kind into the coastal navigable waters of the United States. The pollution of waters along the Atlantic Coast has been a menace to health, recreation, bathing and fishing. The Bureau of Mines made an exhaustive report on this subject, which will, no doubt, be of aid in bringing about favorable action by Congress on this legislation. A bill of similar character, House Bill No. 612, has been introduced by Congressman Walter Lineberger of Long Beach, Calif.

One Year of Common Colds.—In a group of about 6,700 clerical employees at the home office of the Metropolitan Life Insurance Company there were 2,824 cases of "colds" which involved disability for work during the year ending July 28, 1923. These affections occurred therefore at a rate of 420.7 per thousand employees for the year. The average days of disability for this illness per person on the payroll was 0.9, and the average days per case were 2.2. In all there were 6,233 days lost for the year for these conditions which included coryza, acute bronchitis and tracheitis. There appeared to be two periods of maximum incidence for these infections: the first, following the advent of cool weather in the early fall; the second, when the coldest weather of winter prevails the following January or February. These data indicate that there are distinct relationships between the respiratory infections and changes in the weather. For example, a drop of 10 degrees in the weekly mean temperature carries with it an increase of eighteen common colds per week in this group of 6,700 people. On the other hand mean relative humidity and total precipitation showed only slight influence on the incidence of colds.

Mortality from Tuberculosis, 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show that 90,452 deaths were due to tuberculosis in the registration area of the United States in 1922, with a death rate of 97 per hundred thousand population. This is a drop of 2.4 since 1921, in which year the rate was 99.4. Although twelve states show increases in rates for 1922, in twenty-two states there are decreases. Adjusted rates based on the standard million population have been calculated. The highest adjusted rate from tuberculosis for 1922 is 172.6 per hundred thousand population for Colorado; the lowest, 36.1 for Nebraska. The high rate for Colorado should not be ascribed to unhealthfulness of climate, but to the fact that the climate attracts those afflicted with tuberculosis. For certain states adjusted rates have been calculated separately for the white and colored populations. In this group, Tennessee has the highest adjusted rates for both white and colored (respectively, 121.8 and 299.8 per hundred thousand population). The lowest adjusted rate from tuberculosis for white population is 54.5 for Mississippi and this state and Florida each shows the lowest rate for colored population (171.5 per hundred thousand population).

Senate Investigation of "Diploma Mills."—The Committee on Education and Labor of the United States Senate is authorized, by Senate Resolution No. 61, introduced by Senator R. S. Copeland of New York, to investigate alleged medical "Diploma Mills," following the revelations in Connecticut and elsewhere. The resolution provides:

> That the Committee on Education and Labor be, and hereby is, authorized to inquire into and ascertain the following facts:
>
> (a) If the United States mails have been used by self-styled medical institutions and organizations known popularly as "diploma mills" for purposes of fraud in connection with the sale of degrees or diplomas in preparation for medical practice.
>
> (b) If the public health has been injured by the activity of such self-styled medical institutions and "diploma mills."
>
> (c) If graduates of any such low-standard institutions are employed by the United States Public Health Service or any other branch of the Government.
>
> (d) If the standing of American medical institutions and of our medical profession generally has been injured in other countries by the action of such self-styled medical institutions and "diploma mills."
>
> (e) If graduates from any such self-styled medical institutions and "diploma mills" are now offering themselves as practitioners of medicine in the District of Columbia.
>
> (f) If all of the laws and requirements as to registration are being observed by practitioners of medicine in the District of Columbia.
>
> (g) If any institutions giving degrees in medicine in the District of Columbia are issuing diplomas or degrees to persons without sufficient knowledge and training as legitimately to entitle them to such diplomas or degrees.

Mortality from Cancer, 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show that 80,938 deaths were due to cancer in the death registration area in 1922, which comprised about 85.3 per cent. of the total population of the United States. If the rest of the United States had as many deaths from cancer in proportion to the population the total number of deaths from this cause in the entire United States was 95,000 for 1922, against a corresponding estimate of 93,000 for 1921. The death rate from cancer in the registration area in 1922 was 86.8 per hundred thousand population as against 86 in 1921. Only five states show lower rates for 1922 than for 1921. In comparing the death rate from cancer in one state with that in another, the bureau uses "adjusted" rates for age and sex. The highest adjusted cancer rate for 1922 is 106.9 per hundred thousand population for Rhode Island; the lowest, 53.1 for Tennessee. For a few states adjusted rates have been calculated separately for the white and colored populations. In this group of states the highest adjusted rate for the white population is 92.5 per hundred thousand for Maryland and the highest for the colored population is 81.7 also for Maryland. The lowest adjusted rate for white population is 52.8 for Tennessee and the lowest rate for the colored population is 40.8 for Florida.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Mercy Hospital, Webster City, Iowa, $500,000, by the will of John McCartey of Williams, Pa.

United Israel-Zion Hospital, New York, $65,000, the proceeds of a bazaar.

Paducah, Texas, for the erection of a hospital, $60,000, by the will of Mr. Richards.

Lenox Hill Hospital, New York, $50,000, in memory of his parents, by Rudolph J. Shafer.

Brooklyn Home for Children, the Brooklyn Eye and Ear Hospital, the Brooklyn Orphan Asylum, each $50,000, by the will of Charles Elwell Perkins; the Brooklyn Hospital and the Brooklyn Home for Aged Men will share a bequest of $250,000 on the death of the testator's widow.

Exeter (N. H.) Cottage Hospital, $30,000 in shares of the Great Northern Iron Ore Properties, by Edward Tuck of Paris.

Sturgis, Mich., for the erection of a memorial hospital, $25,000 for construction and $25,000 for an endowment fund, by the will of William C. Grobbisher.

Mount Sinai Hospital, Philadelphia, $20,000, in memory of her husband by Mrs. Isaac Wassermann.

St. Giles Home for Cripples, $7,500; the Home for Consumptives, Brooklyn, $5,000, and St. Christopher's Hospital for Babies, $2,000.

Episcopal Hospital, Philadelphia, $5,000; the Methodist Hospital and the University Hospital, Philadelphia, each $2,500, by the will of Charles C. Kerchline.

Portsmouth (N. H.) Cottage Hospital, $5,000, by the will of Carrie A. Remick.

Germantown Dispensary, Philadelphia, for the endowment of a free bed, $3,000, by the will of Agnes H. Ulmer.

Society for the Relief of Ruptured and Crippled, New York, the Hebrew Orphan Asylum, the Home for Aged and Infirm Hebrews, the New York Institute for the Blind, the Lebanon Hospital, the New York Nose, Throat and Lung Hospital, the Northern Dispensary, and the New York Orthopedic Dispensary and Hospital, each $2,000; Lenox Hill Hospital, the St. Francis Hospital, Wyckoff Heights Hospital, Brooklyn, and the New York Eye and Ear Infirmary and Flower Hospital, each $1,000, by the will of Louis T. Lehmeyer.

The Brooklyn Hospital, the German Hospital, the Brooklyn Home for Consumptives and the White Plains Hospital, White Plains, N. Y., each $1,000, by the will of Adeline M. Munnich.

Pawtucket-Central Falls, R. I., Chapter of the American Red Cross, $1,000, from Col. Lyman B. Goff, and $500 each, from Charles O. Read and John Johnson of Pawtucket.

Mount Sinai Hospital, Philadelphia, $500, by the will of Joseph J. Cohen.

Chester County Hospital, West Chester, Pa., stocks and investments for the erection of a memorial tablet to her parents, by the will of Isabella R. Patterson.

Children's Hospital, and the Mary J. Drexel Home, Philadelphia, two free beds by Mr. and Mrs. Runtt and Dr. Theodore Spressler.

LATIN AMERICA

Tribute to Professor Couto.—The *Brazil-Medico* of Rio de Janeiro devotes eighteen pages to the account of the three-day tribute paid by the profession and the public to Dr. Miguel Couto on the twenty-fifth anniversary of his entering the medical faculty. Two bronze tablets were unveiled, and receptions were held in the medical faculty, in the Academia Nacional de Medicina, of which he has been president for the last nine years, and in the Sociedade de Medicina e Cirurgia, with addresses. He has been regular professor of clinical medicine since 1911, having had the chair of propedeutic medicine before this, and has long been corresponding member of scientific societies in other countries.

FOREIGN

Prize for Cancer Research.—The Christie Hospital, London, is offering a prize of £300 ($1,500) for cancer research. Candidates must submit evidence of original research work bearing on cancer completed or projected. The competition is open to all nationalities.

London School of Tropical Medicine.—The annual dinner was held November 21, at the Hotel Victoria, with Sir Ian Hamilton Benn in the chair. Sir James Allen, high commissioner of New Zealand, Surgeon Vice Admiral J. Chambers, Sir William Leishman, Sir Walter Fletcher and Lord Devonport were guests of the school. It was stated that the school would retain its name within the Rockefeller Institute in honor of the memory of Sir Patrick Manson.

Venereal Disease Law in Bohemia.—A telegram from Prague to the *Medizinische Klinik* states that the new law which went into effect, October 18, provides for notification, compulsory examination of suspects of either sex and compulsory treatment for those found with venereal disease. Reglementation is abolished. Physicians are required to keep records of those treated for venereal disease, with provisions for maintaining professional secrecy. If treatment is refused or neglected, the health officer may have the individual taken to the hospital. The law forbids treatment by correspondence; exposure of other parties to the disease or infection of other parties is subject to penalty. This includes transmission of syphilis by diseased wetnurses or infants. The public health authorities are to provide expert examination and treatment, including the necessary drugs for the poor. Personal prophylaxis is not mentioned in the law.

Women's Medical Service in India.—The thirty-eighth annual report on the work of the National Association for Supplying Medical Aid to Women in India, issued by the Countess of Dufferin's Fund has been published. It includes a report of the Women's Medical Service for India which at the beginning of 1922 consisted of thirty-eight medical officers with four temporary officers. The number of women medical students was 436, and there were 400 women practitioners of medicine in India and as many as 145 hospitals whose staffs are composed of women. This indicates the advances made in providing medical aid by women since 1885, when the service was formed. Large areas, however, are still unprovided with medical relief and the council of the Dufferin Fund summarizes the chief needs of the country as regards medical aid by women as follows:

1. A far greater number of hospitals whose staffs are made up of women.
2. A far larger supply of Indian women doctors both for hospital and private work.
3. More opportunity for graduate work to keep up the standard of professional knowledge.
4. Training schools for nurses and midwives in connection with all women's hospitals.
5. More funds for the working of the hospitals.
6. A constant supply of women doctors and midwives to take up preventive work in connection with maternity and child welfare in all parts of the country.

Government Services

U. S. Public Health Service Report

The fifty-second annual report of the U. S. Public Health Service for the fiscal year ended June 30, covering its one hundred and twenty-fifth year of its existence, has just been published. To meet the growing demands of American shipping and to reduce serious fire hazards due to antiquated buildings, new marine hospitals are urgently needed, it is said. Twenty-five hospitals are now operated by the U. S. Public Health Service, including the National Leprosarium at Carville, La. A new feature of the present report is a section dealing with the use of the radio for the dissemination of health information which was instituted, July [illegible]

Report of Surgeon-General U. S. Army for [illegible]

In his report for the year ending June 30, 1923, the [illegible]
General of the Army calls attention to increase [illegible]
as the important need of the department, and [illegible]
legislation is required. The present allow[illegible]
is barely sufficient to provide satisfactory me[illegible]
and hospitalization for the sick and injured [illegible]
the reserve personnel satisfactorily. [illegible]
believes three medical regiments will be [illegible]
northern, southern and western parts [illegible]
present personnel includes 983 medical [illegible]
nary and fifty medical administrative [illegible]
Analyzing the diseases affecting [illegible]
year, the surgeon-general calls [illegible]
which has continued to increase [illegible]
decreased steadily. The rates [illegible]
and [illegible] diseases [illegible]
only [illegible] of typhoid in [illegible]
[illegible] and there [illegible]
[illegible] report follo[illegible]
[illegible]

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 30, 1923.

Dean Roger's Impressions of South America

Prof. H. Roger, dean of the medical faculty of the University of Paris, gives, in the *Presse médicale,* an account of his visit to South America. It is the general, but erroneous, belief in Europe that South Americans are not familiar with European science. Those who entertain such a belief would be greatly surprised if they could visit the splendid scientific institutions and modern hospitals that are rising throughout South America. No doubt South Americans can still learn from us, but we can learn much from them, and Roger assures Europeans that a visit to South America will well repay them. Whereas our scientists often devote time and energy to abstract research, and take pleasure in formulating hypotheses and theories, the investigators of South America are, for the most part, intensely practical, with little interest in doctrinal discussions. They go straight toward their goal, and make practical and successful applications of science. As an illustration, Roger refers to the work of Oswaldo Cruz, who in three years eradicated yellow fever from Brazil. He praises highly the remarkable organization of charity work and, more particularly, the first-aid or emergency services. In all large cities there are one or more first-aid stations where physicians, surgeons, midwives and pharmacists may be found on duty, day and night. At Santiago de Chile, Roger was afforded a demonstration which convinced him that the system functioned almost perfectly. One evening, about 11 o'clock, as he got up from a banquet that had been given in his honor, by way of demonstration the central first-aid station was called by telephone and asked to send an ambulance for a sick man. Six minutes after the call was turned in, the emergency ambulance was in front of the door. Roger took a seat in the ambulance and, two minutes later, arrived at the first-aid station, where physician, surgeon and assistants were waiting, ready to treat or to perform an emergency operation on the patient who, fortunately, proved to be in the best of health. Referring to the warm welcome accorded in South America to foreign scientists, especially to representatives of the medical profession, Roger points out that social relations with foreigners are facilitated by the fact that almost everybody speaks French fluently.

A Life Annuity for Madame Curie

The minister of public instruction has presented to the chamber of deputies a bill which, if accepted, will confer on Madame Curie, as an evidence of national appreciation, a life annuity of 40,000 francs. It is planned to bestow the gift, Dec. 28, 1923, which will be the twenty-fifth anniversary of the announcement to the Academy of Sciences of the discovery of radium. The way having been prepared by the remarkable work of Henri Becquerel, the collaboration of M. and Mme. Pierre Curie produced at first polonium and then radium.

In the minister's statement setting forth his reasons for recommending the passage of the bill, he referred in these terms to the extremely new character of the discovery of radium:

> Our whole conception of matter, chemistry and the science of the universe has been placed on an entirely new basis; in addition, the emanations emitted in the transmutation of the atoms of radium have been found to exert a powerful action on living matter. Already, effective means have been discovered by which certain evils from which humanity suffers, such as cancer, can be combated. The strange and profoundly new character of these discoveries, the practical developments associated with them, and the hopes that they awaken for the future, create for France the moral obligation of shewing its gratitude to those who made possible this glorious event. Unfortunately, Pierre Curie passed away prematurely. With admirable faith, firm resolve and scientific self-denial, Madame Curie is continuing the work so auspiciously begun. The hour has come for France to show her grateful appreciation.

Indulgence Shown by the Courts Toward "Healers"

In previous letters, I have referred to the indulgent attitude often assumed by our courts toward all kinds of "healers," whose methods they refuse to recognize as constituting illegal practice of medicine. The appellate court of Paris has recently furnished another case in point. A "magnetician," whose circulars indicated that he regarded himself as a disciple of Pascal, Descartes, Mesmer, Curie, Pasteur and Jeanne d'Arc, was sentenced, a few months ago, by the court of correction to one year of imprisonment and a fine of 200 francs, for the illegal practice of medicine. The defendant appealed, and the appellate court acquitted him, holding that the accusation of illegal practice of medicine did not hold as the treatment consisted merely in placing a magnet in a basin of water, pronouncing a few magic words accompanied by cabalistic signs, applying compresses wrung out of this water, and then sending the patients away with the assurance that they would be cured.

Cancer at Bordeaux

M. Albert Lachapèle, an intern of the hospitals of Bordeaux, has published recently in the *Gazette hebdomadaire des sciences médicales de Bordeaux* an interesting contribution to the statistics of cancer in large cities. Table 1 shows the mortality from cancer in Bordeaux during the period from 1914 to 1922.

TABLE 1.—*Cancer Statistics for Bordeaux, 1914-1922*

	Years								
	1914	1915	1916	1917	1918	1919	1920	1921	1922
Total number of deaths	5,961	5,696	6,194	6,102	8,543	6,317	5,717	5,424	5,186
Deaths from cancer	319	301	388	346	310	364	359	351	379
Percentage	5.3	5.2	6.2	5.6	3.7	5.7	6.2	6.4	7.3

The population of Bordeaux has increased from 261,678 (1914) to 267,409 (1921). With the exception of 1918-1919, under the effects of the influenza epidemic, the number of deaths remained about the same in spite of the increase in the population. The total mortality decreased slightly, while the mortality from cancer increased considerably. The number of women dying of cancer is greater than that of men, as may be seen from Table 2.

TABLE 2.—*Sex Distribution of Deaths from Cancer*

	Years								
	1914	1915	1916	1917	1918	1919	1920	1921	1922
Women	206	199	250	201	184	216	217	217	210
Men	113	102	138	145	126	148	142	134	169
Total	319	301	388	346	310	364	359	351	379

The digestive tract and appendages are most frequently affected (49 per cent. in 1922). In decreasing order of frequency come the stomach, the liver, the rectum, the small intestine and the colon, the tongue, the esophagus and the pancreas. Next in order of frequency are cancer of the uterus (16 per cent. in 1922) and cancer of the breast (5 per cent. in 1922).

Deaths

The death of Dr. Henri Bouttier, physician to the hospitals of Paris, has been announced. He graduated in 1918 and became a collaborator of Prof. Pierre Marie. During the war, he published a series of articles on traumatism of the brain and meninges; and he has also reported numerous researches on epilepsy: azotemia and the urea index during epileptic seizures; the epileptic state, and the circulatory and vasomotor disturbances of epilepsy. In collaboration with Pierre Marie, he published recently a series of researches on cerebral sensory disturbances: the great variety of sensory dissociations, and their association with sensory affections of thalamic origin. Bouttier also, in collaboration with Pierre Marie and Crouzon, introduced the treatment of epilepsy with potassium borotartrate.

Dr. Paul Oudin, well known as an electrotherapeutist and roentgenologist, has died at the age of 72. He was born at Epinal, in 1851, and at an early date began to devote himself to electrotherapeutics. He invented a device for increasing the tension of an electric current, which bears the name "Oudin resonator" and which has recently been employed in connection with wireless telegraphy. In 1895, Oudin made the first roentgenograms made in France, which were taken immediately after Roentgen's discovery was announced.

Dr. Paul Michaux, who was honorary surgeon to the hospitals of Paris, has died at the age of 69. After retiring from active duty, he devoted a good share of his time and energy to the Féderation gymnastique et sportive des patronages de France, which he had founded and of which he was the president.

Physical Reeducation in the Army

From the point of view of social justice, it does not seem right to put on the young men of robust appearance the whole weight of military duty and to neglect those who need to be developed; this often cannot be accomplished owing to lack of proper counsel and assistance. The annual examination of those who, on account of certain defects, were placed on the deferred list, has proved that the majority of these men had not overcome their defects after being returned to their home environment. Up to 1901, the military authorities had not given special attention to the weakly or those whose condition was below par. Such men remained in their units where the officers gave them some special consideration, but often really did not know just what treatment was best for them. In 1901, it was decided to try the plan of grouping them together in a special platoon, one for each regiment. But the creation of these platoons of underfit men had not been generally applied. The war of 1914-1918, with the enormous losses that it entailed, caused the plan to be revived. In 1917, whole companies of the underfit were organized, with a view to bring as many men as possible up to standard fitness after a short time spent in a special training camp. It proved possible to bring, within a year, 100,000 such underfit men up to the required standard of efficiency. These special training centers have continued to function since the war closed. In 1919, they were reserved for a time for the war wounded and convalescents, but since 1920 they have again been used for the special training of young men with defective constitutions. They are now combined with centers of physical instruction, and a regional organization has been perfected. Their inspection, from time to time, by the exemption and classifying boards makes it possible to place the men in the special groups indicated by their degree of physical development. Many men (especially at the beginning of their training) are given individual attention and receive special prescriptions as to exercise, diet, etc. A great deal of attention is given to breathing exercises, for the vast number have never learned to breathe properly. Every month, a reexamination and a reclassification allows the medical director of the center either to return a man to his unit as completely fit or to place him in a higher class among those whose retraining is not yet completed. This monthly reclassification is based on: (1) a clinical examination, together with any special examinations (roentgenologic, laryngologic, etc.) that may be needed; (2) a physical examination comprising various tests in walking, jumping, running, climbing, lifting and throwing, and (3) a physiologic examination (heart, lungs), bringing out the reaction of the subjects to various exercises.

With the results of these careful examinations as a basis, the physician can make the new classification of the subjects, with a full knowledge of the existing conditions. He can at any time intervene and make any changes he may desire in the method of training; while the instructors only need to follow the prescriptions in order to regulate the progress of the training. The military instruction, in a general way, runs parallel with the physical reeducation, the military exercises taken up increasing gradually in duration and intensity, as the men become more fit through training.

Furthermore, these centers of reeducation make it possible to eliminate, after a trial, a considerable number of young men who present affections incompatible with military service. These subjects classed as unfit for service, either at a medical examination or during the first few months of training, are returned to their unit and are later reexamined by the exemption board.

LONDON

(From Our Regular Correspondent)

Nov. 26, 1923.

Casualties in London Streets

A return just issued states that 158 persons were killed in street accidents which were recorded by the Metropolitan Police during July, August and September. Of this total, 140 deaths resulted from accidents in connection with mechanically propelled vehicles, and the remaining eighteen from accidents in which horse-drawn and other nonmechanically propelled vehicles were concerned. Nine of the deaths in the latter class were due to accidents to pedal bicycles. Mechanically propelled trade and commercial vehicles were responsible for forty-five deaths, private motorcars for thirty-seven, motor omnibuses for thirty-one, motorcycles for seventeen, streetcars for eight, and cabs for two. In the same period the total number of accidents to persons or property, including those in which deaths occurred, was 19,263, of which 13,798 occurred to mechanically propelled vehicles and 5,465 to horse-drawn or nonmechanically propelled vehicles.

Breakdown of the Unit System at the London Hospital

What is known as the "unit system" was introduced into this country in 1920 with the idea of improving the teaching of medicine and advancing research. The principle was that already followed in other countries: to provide certain teachers with a sufficient salary to make them independent of private practice and able to devote all or the greater part of their time to the objects mentioned above. Previously, teachers lived on private practice, and the only benefit they derived from teaching was the enhanced reputation. The new plan seems so far to have been successful, though it must be remembered that it forms only a small part of hospital teaching. Side by side with the "unit" teaching the old system continues, and it is in the latter that the most eminent men in the profession take part, for the emoluments of the unit would be no attraction to them. But suddenly the failure of the system on the surgical side has been announced from the London Hospital. Mr. Souttar, director of the surgical unit, states in a letter to the *British Medical Journal* that he finds that withdrawal from private practice has a narrowing effect on his mental outlook. It confines him to the wards and laboratories of the hospital, and the difficulties and requirements of work in the outside world are forgotten. The more complete the or[illegible] tion [illegible] work, tl[illegible] perfect the assistance he [illegible] will he [illegible] the mass of information placed before him and the less on his observation and interrogation of the patient. The diagnosis of fractures tends to become a matter of the roentgen rays, and a gastric case appeals to him only as source of test meals and opacities. Dealing with patients of low mental power, he is apt to feel that their interrogation will only mislead him. Yet he is teaching men who, when they go into practice, will have to cope with the very difficulties which his own surroundings tend to obliterate. Again, it is no small part of the business of the medical student to learn those from whom he may best obtain assistance when he is out in the world. It is an impossible handicap to forbid his teacher to consult with his old pupils. Even in research, Mr. Souttar finds disadvantage. His time is absorbed in a routine of responsibilities, and the very material for clinical study he finds eluding him. The clinical researcher depends for his material not on the casual entries of the hospital, but on cases sent by outside physicians who know his special interests. But private practice seems too complex a thing for a physician to send his private patients to one consultant and his hospital cases to another. Mr. Souttar found his cases for admission dwindling and his beds empty. A return to private work immediately brought back the old conditions of a good supply of hospital cases, and the special cases so essential to teaching began to appear. Mr. Souttar draws attention to the difference between the director of the unit system in this country and the professor of surgery on the European continent, from which the system has been borrowed. The professor is the absolute head of the whole clinic, including its laboratories. Not only does he engage in private practice but he is the acknowledged leader of his profession, and all the most mportant and exceptional surgery of the district passes hrough his hands. Through his assistants he can organize urgical demonstrations on a grand scale, and the teaching can be placed on a systematic basis which we have never achieved. But in most cases the teaching of the continent is limited to he lecture theater. The personal touch of ward teaching, which is such a feature of Britain and so valuable, is lost, and the product is more likely to be a brilliant student than a useful physician. In Mr. Souttar's opinion, our teaching is a cause for pride rather than dissatisfaction, and no great revoution in its methods is required. He recommends the scheme adopted at the London Hospital, where each of the five surgical "firms" has a paid assistant. Each firm consists of a senior and junior. The assistant is a young surgeon who is paid $2,000 a year. His duties are to assist in the organization of teaching and research, and only in exceptional circumstances is he called on to undertake the ordinary routine of hospital work.

In the correspondence evoked by this letter, Mr. Sampson Handley states that, after full consideration, his hospital (the Middlesex) declined to adopt the professorial unit system, fearing the very disadvantages found by Mr. Souttar. They decided that all the advantages of the system could be obtained by a similar method to that now adopted at the London Hospital—the appointment of whole-time registrars at a salary of $1,500 a year, tenable for three years. These appointments appeal to men who have completed resident ones and are working for higher qualifications. The result has been increased efficiency. Another correspondent criticizes Mr. Souttar, expressing surprise at his complaint that he requires special cases for teaching and research. This correspondent (an anonymous London teacher) would have thought that the function of the surgical unit was to investigate common, every-day cases, of which our ignorance is profound. For instance, if rheumatoid arthritis had been chosen for research, the investigator would have been overwhelmed with cases. The same situation would hold for the biochemical relationships of cancer.

VIENNA

(From Our Regular Correspondent)

Nov. 24, 1923.

Scarcity of Cadavers for the Teaching of Anatomy

The anatomic institute of our university is face to face with a serious condition that may even bring about the closing of this important part of the medical school. During the last few years, the number of cadavers delivered to the institute has been constantly declining. While formerly each group of six students engaged in dissection could be supplied with from three to five cadavers each term, last year only two bodies were available; even these for the most part had been preserved for months by means of phenol (carbolic acid) injected into the veins. In "better times" a stock of cadavers was always supplied to the cellars; but in the last few months this stock has been nearly exhausted, and it has been necessary to limit the number of new students below a certain "numerous clausus." According to the data given by the board of the institute, in 1921-1922, there were delivered for dissecting purposes the bodies of seventy-eight adults and seventy-nine children; in 1922-1923, the numbers were twenty-two and nine, the latter already partly dissected. This term, only one body has been received. The reason for this unfortunate situation is to be found only partly in the diminished number of patients dying in hospitals or in the action of religious societies that undertake to bury the poor. The chief fault lies in the organization for supply; this has been handed over by officials to incompetent agents with a view to saving the cost of transporting the cadavers to the institute and from there to the burial grounds. Naturally, this has caused widespread indignation in medical circles. But so powerful is the organization of officialdom in this republic that all efforts of the medical faculty, as well as public protests, have proved useless. Now that the facts are widely known, it is probable that the new national assembly will pass a law providing for the adequate supply of teaching material by requiring the delivery of a certain percentage of the bodies dealt with in each hospital.

Public Health Budget for 1923-1924

In the budget for 1923-1924, the following sums have been provided for expenditure on public health: treatment, control and after-care of war invalids, including pensions and hospital accommodation, $5,500,000; control of the health of juveniles (school physicians, inspection of board schools, upkeep of baths, playgrounds), $300,000; government institutes for examination of foodstuffs and for the manufacture of serums and vaccines, $200,000; special institutes for physical therapy (radioactive waters), $500,000; state hospitals, control of epidemics and the fight against alcohol and tuberculosis (chiefly lectures and public instruction), $1,500,000; midwifery service in the country, police medical service and sanitation of rural districts, $700,000. All these figures must be considered from the standpoint of the fact that our country has only 6,500,000 inhabitants.

Alcohol as a Cause of Accidents

In an interesting paper on "Alcoholic Etiology of Injuries," recently discussed in the report of the Austrian ministry of health, Dr. Schumacher, who has examined the records for the last three years of the first accident department of the General Hospital in Vienna, deals with accidents caused directly or indirectly by indulgence in alcoholic beverages. The figures are not absolutely correct, as the department is closed every September for four weeks, and its work is transferred to another clinic for that time; some alcohol cases also are taken to other hospitals. But still the statistical material thus obtained is ample to allow certain definite conclusions. It appears that the total of "alcohol accidents" is smaller than might be expected. The monthly average for 1920 was 2.3 out of 388 accident cases; for the year 1921, it was 3 out of 425; and for 1922, it rose to 10 out of 403 each month. Comparing this with the probable total of cases of drunkenness in a large capital city of 2,000,000 inhabitants, one is struck with the small proportion of intoxicated persons who are injured. The accidents happen mostly in the course of fights, from being run over by vehicles, by falls, or by attempts at suicide. The largest number of cases brought to the accident department is uniformly encountered in the months of February and March; doubtless, this is due to the carnival, which, in this country, is celebrated in these months. As regards days, Saturday night and Sunday are the most fruitful; the weekly salary is soon spent in drinking; these two days alone have as many cases as all other days together. Accidents caused indirectly by alcohol are most often due to fights, ninety-one out of a total of 197; younger persons are mostly concerned, more than 60 per cent. being below 30, and only 15 per cent. over 40. The latter group are more easily the victims of falls, and the injuries are mostly on the occiput, forehead or face. The injuries caused by vehicles concern chiefly older persons; only 12 per cent. of patients below 30 were brought in for this reason, against 40 per cent. of persons over 50. These injuries are often serious; fractures of the extremities, of the cranium, and comotio cerebri are rather frequent. Of late, serious injuries have increased in frequency, no doubt, as a result of the increase of traffic as regards both intensity and speed. A peculiar feature of the cases brought in with injuries caused by suicidal attempts is that out of the thirteen cases recorded no less than eleven were inflicted with a knife or dagger. Stabs in the abdomen or heart region were the rule, the use of firearms being apparently abhorred by the drunkard. It must, however, be stated that the instances in which the attempt at suicide was successful are not considered in this report. Here again, the majority of the cases happened on Sunday or Monday. The overwhelming majority of all patients suffering from alcohol accidents were men, only 3 per cent. being women; none were under 18 years of age, two were above 76, while more than 30 per cent. were younger than 30. Ninety-five per cent. were manual workers. Dr. Schumacher, in summing up his observations, points out a peculiar fact. The intoxicated person in falling is less prone to sustain severe injury, unless he is knocked down by great force. The sober person, in falling, tries to regain his equilibrium and may overstrain different muscle groups, with the result that joints or bones may give way. The drunken person falls like a sack, without resistance on the part of his muscles; he simply cracks the skin over the head or some long bone which happens to strike against the ground. To illustrate the extent of alcoholic excess in this city, it may be added that, in the first half of 1923, the police arrested 8,753 persons for being drunk and disorderly on the streets; of these, 79 per cent. were men. Saturdays accounted for 2,163 cases, Sundays for 1,444. Of each 20,000 inhabitants of the city, forty-nine were charged with being drunk. No wonder that the antialcohol movement has received such attention lately from the police and the eugenists.

Census Sex Distribution and Birth Rate

The preliminary result of the Austrian census, taken March 7, 1923, has been published, and the following figures are of interest. The entire population amounts to 6,526,661, of whom 3,382,568 are women, and only 3,144,093 men. The women have now reached the same number as in 1910, the men show as yet a deficit of more than 141,000. The excess of women over men is now 76 per thousand, which is 53 more than in 1910, but already less than in 1920, when the last preliminary census was taken; it then stood at 83 per thousand. In the mountainous regions of Tyrol, Salzburg and upper Austria, both sexes have passed the figures of the year 1910 as regards the number of births, while in Vienna and the industrial centers neither sex has yet reached the 1910 mark. In three rural districts only the women are more numerous than in 1910. In the cities and towns—except Vienna—the general increase of the population that obtained until 1914 has again started, but admittedly the female component is larger than the male. Only in two purely industrial factory towns—Steyr and St. Polten—does the number of men exceed that of women. The ratio of women to each thousand men in the different districts is: Vienna, 1,169; Tyrol, 1,037; upper Austria, 1,054; lower Austria, 1,039; Styria, 1,026; Graz, 1,139; Innsbruck, 1,093; St. Polten, 973; Steyr, 952; Baden, 1,268; Linz, 1,086. The birth rate of the last three years are given. In 1919 it was 17.96 per cent.; in 1920, 22.40; in 1921, 25.10; the death rate was 20.33, 18.97 and 17.06, respectively. A marked decrease in infant mortality and in the age group up to 5 years is noted.

Dental Surgeons and Dental Mechanics in Austria

Altogether, there are 470 qualified physicians in Vienna who practice dentistry exclusively out of 3,267 practitioners, while 788 licensed mechanics compete with them in caring for the teeth of the public. The whole republic, with 6,689 physicians, has just 700 dental surgeons, or a little more than 10 per cent., while the number of mechanics is 1,112. The latter will gradually decrease in time because under the new dental act no new licenses will be issued; the existing mechanics are allowed to do a certain amount of surgical work that is directly connected with mechanical dentistry.

BERLIN

(From Our Regular Correspondent)

Nov. 24, 1923.

Researches of Nobel Prize Winners on Physiology of Muscle

In the researches of Meyerhof of Kiel and Hill of London, between whom the Nobel prize for medicine was divided, the old problem of muscular activity, which Helmholtz and du Bois-Raymond sought to solve, has again come to the front. When a muscle contracts, it not only performs mechanical work but also produces heat. Both are derived from the usual sources of energy, that is, by combustion; in muscle, sugar is burned with production of carbon dioxid, and the energy thus eliminated is transformed according to the general law of the conservation of energy, which holds good for animal organisms as for machinery. The question arises as to the relationship between the chemical, mechanical and thermic processes. Possibly muscle works like a steam engine, in which heat is formed first by oxidation and then a portion of the energy is converted into motion. Against this old view, however, many objections have been raised. It is possible that muscle does not need to produce heat and then convert it into motion. For purposes of experimentation, physiologists have from time immemorial used dissected frog muscle, because it continues to live for many hours after removal from the body and offers simpler conditions for research. The frog's gastrocnemius weighs about a gram, is 3 cm. in length, and a single contraction extends over a tenth of a second. Nevertheless, Hill was able, with an exceedingly delicate apparatus, to measure with mathematical precision the quantity of heat that the muscle develops at one contraction. Hill was surprised to discover that only part of the heat (scarcely half) is produced during the contraction, and that the remainder is not formed until the muscle has again relaxed, and, furthermore, that the time required extends over many seconds. Similarly, the Hungarian investigator Verzar found that the oxygen consumption of the muscle takes place, for the most part, after the contraction. These two stages of muscular activity can be distinctly separated from each other if the muscle is allowed to work without oxygen, being hung up in an atmosphere of nitrogen as did Weiszäcker, and, by the addition of hydrocyanic acid, is deprived of the capacity of utilizing oxygen. The muscle contracts even without oxygen, anaerobically, as it were; its efficiency—the relation of the work performed to the quantity of heat produced—is then even greater (from 70 to 100 per cent. instead of from 30 to 40 per cent.), which would be impossible for a heat-generating machine. The muscle, however, becomes quickly fatigued, and of the heat that would ordinarily be generated only the first half is actually produced, the remainder being suppressed. There is then plainly a first "initial" stage and a second "oxidative" stage of heat generation.

Meyerhof attacked the problem more from the chemical side. He studied more particularly the lactic acid, which, as recent investigations had shown, is formed normally in resting muscle, but still more rapidly in working muscle. Lactic acid, as the name indicates (Latin *lacteus,* milky), is produced at the souring of milk by bacterial decomposition of milk sugar, and Meyerhof had previously discovered a peculiar connection between fermentation and respiration. From yeast, substances may be extracted which, in animal cells, facilitate respiration and sugar combustion; and, vice versa, an extract of muscle furthers yeast fermentation. So, as the first stage of respiration in the muscle, a fermentation-like process is observed, which splits the muscle sugar (glycogen) into lactic acid. Again, by withdrawing the oxygen this stage can be separated, which causes the acid to accumulate in the muscle, and this stage continues as long as the contraction. The significance of the process is intelligible; for, as other investigations had shown, it is the acid that produces the shortening of the muscle. Following the contraction there is a considerable period in which the lactic acid completely disappears under the influence of the oxygen intake. Is the lactic acid simply burned, with the production of water and carbon dioxid, as is the most natural assumption? Meyerhof, from careful determination of the sugar content, the amount of lactic acid, the oxygen consumption and the formation of carbon dioxid during the various stages of muscle activity, found that only one third of the lactic acid is burned and eliminated; two thirds are changed back, in the economy of the organism, into the original substance (muscle sugar), under the influence of the heat produced by the combustion; the decomposition of one portion is utilized for the resynthesis of the other portion. Between formation and elimination of the acid there is an intermediary stage. In oxygen-free surroundings when no acid is eliminated, the muscle still becomes fatigued, and the acid is transferred from its place of origin to parts distant from the contracted portions, where it remains inactive; only when it accumulates in considerable amounts does it cause fatigue and a flaccid and nonexitable state of the muscle.

Thus, chemical research has shown, corresponding to the initial and oxidative stages established by Hill, that there is a first phase during contraction, when lactic acid is formed, which takes place just as well when oxygen is excluded; and a second phase in which lactic acid is eliminated, burned or metamorphosed, which is possible only in the presence of oxygen. As muscle sugar is a prerequisite for the genesis of lactic acid, so the second stage is a prerequisite and preparation for the first. In the second stage, the trigger is set, as it were, and is released by the contraction of the muscle; in other words, the accumulator is charged and its energy is set free by the contraction. If we regard the muscle as a machine, then we must consider it as essentially a chemical and not a heat-producing machine. Only when we combine the findings of Meyerhof and Hill, which confirm and supplement one another, do we get a complete picture of what takes place.

Nutrition Among German Children

Recent reports of school physicians and physicians in infant welfare stations, in large cities and especially in Berlin state that there has been marked impairment in nutrition among children during the last few weeks as the result of the sudden and unprecedented increase in the cost of food, together with the dearth of indispensable articles of diet. There is great distress also among the sick of all age groups; most needed remedies are out of the reach of most patients, and even institutions that are fairly well supplied with funds furnished by foreign countries are frequently unable to secure the simplest medicines. Supplementary feeding in the form of a breakfast containing 500 calories is to be provided, at government expense, for 500,000 children, for the most part in the schools.

Color Perception and Acuity of Vision in Sailors

According to a recent report (No. 44) of the federal public health bureau, in the year covered by the reports, 8,854 sailors were examined for acuity of vision. Of this number, 8,568, or 96.77 per cent., possessed satisfactory vision, while the vision of the remaining 286 was inadequate. Examination for color perception was carried out on 8,779 sailors. Of this number, 8,599, or 97.95 per cent., were not color-blind; nineteen, or 0.22 per cent., were unable to perceive green; seventy-one, or 0.81 per cent., could not perceive red, and ninety, or 1.02 per cent., had little or no color perception.

Poisoning by Oil of Chenopodium and by Mercuric Chlorid Tablets

According to a report of the federal public health bureau (No. 44), several deaths among children have been occasioned recently by adult doses of oil of chenopodium. This vermifuge is rightly regarded as effective, but it is dangerous unless proper care is taken. Oil of chenopodium should never be administered except on a physician's prescription and under medical supervision, lest children, through misunderstanding, be given doses intended for adults. It is planned to add this remedy to the list of drugs that may not be dispensed without a physician's prescription.

There have been several cases in which mercuric chlorid tablets have been introduced into the vagina to prevent conception by persons ignorant of their highly poisonous nature. Several women have succumbed to acute mercurial poisoning. Attention is called to these cases, and a note of warning is sounded.

Marriages

Roy M. Cox, San Luis Obispo, Calif., to Miss Olive Burnett Hall of Neligh, Neb., November 21.

Arthur Johnson Greenleaf, Mountville, Pa., to Miss Kathryn Seitz of Quarryville, recently.

Ernest Mills Kingsbury to Miss Hannah Jane Nelson, both of Clearwater, Minn., October 8.

Edward Henry Kupke, Kenney, Ill., to Miss Anna Marcue of Lemar, Iowa, November 25.

Henry Wise Lyon to Miss Fannie Darden Gotlin, both of Windsor, N. C., November 17.

John H. Butts to Miss Margaret Isabelle Black, both of Waterloo, Iowa, November 28.

J. Russell Van Sickle, Holly, Mich., to Miss Ruby Oliver of Detroit, November 19.

William H. Scott to Miss Verna Quivey, both of Dallas City, Ill., November 6.

Felix H. Renberg to Miss Hattie Arnstein, both of Chicago, November 27.

Deaths

Harold Nicholas Moyer ⊕ Chicago; Rush Medical College, Chicago, 1879; died, December 14, of heart disease. Dr. Moyer was born in Canajoharie, N. Y., in 1858; from 1886 to 1903, he served on the faculty of Rush Medical College as an assistant in diseases of the nervous system, lecturer in physiology and histology, adjunct professor of medicine, assistant to the neurologic clinic and assistant professor of medicine. He was a member of the House of Delegates of the American Medical Association, from 1902 to 1904, and a member of the Reference Committee on Credentials of the House of Delegates in 1904. He was formerly president of the Illinois State Medical Society and the Chicago Medical Society, was a member of the Chicago Neurological Society, the Chicago Pathological and the American Neurological Association. He was at different times on the staff of the Cook County, the Columbus, St. Luke's, and the Mercy hospitals of Chicago, and the Eastern Hospital for the Insane, Kankakee, Ill. Dr. Moyer was widely known as a medicolegal adviser. He was a man of genial character with numerous friends.

Everett E. Hodgin, Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1896; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; president of the city board of health; on the staff of the Indianapolis City Hospital; aged 52; died, December 4, of mitral regurgitation, following erysipelas and pneumonia.

Vivian Pendleton Gaines, Mobile, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1872; Medical Department of Columbia College, New York, 1873; member of the Medical Association of the State of Alabama; formerly lecturer in obstetrics at the University of Alabama School of Medicine; aged 72; died, November 27, of mitral regurgitation.

William Edward Bloyer, Buckland, Ohio; Eclectic Medical Institute, Cincinnati, 1879; member of the Ohio State Medical Association, and president of the American Association of Orificial Surgeons; formerly professor of materia medica at his alma mater; aged 70; died, November 24, of carcinoma of the stomach and diabetes mellitus.

Sylvester Joseph Byrne, Brooklyn; Long Island College Hospital, Brooklyn, 1890; for twenty-seven years assistant registrar of records in the Brooklyn Department of Health; chairman of the Committee on Vital Statistics of the American Public Health Association; aged 63; died, December 5.

Lawrence Pierre Desmond, Cheyenne, Wyo.; Bellevue Hospital Medical College, New York, 1898; member of the Wyoming State Medical Society; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; was found dead, November 25, of heart disease.

David Cassat Barber ⊕ Los Angeles; Miami Medical College, Cincinnati, 1886; formerly assistant professor of clinical surgery at the University of California Medical School, San Francisco; at one time superintendent of the Los Angeles County Hospital; aged 61; died, December 2.

Paul Carson, Boston; Dartmouth Medical School, Hanover, N. H., 1894; served as port physician for fifteen years; formerly chief of the division of child hygiene of the city board of health, and medical inspector of the Boston Health Department; aged 53; died, November 27.

William George Hawkey, Belvidere, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; member of the Illinois State Medical Society; county coroner for twelve years; formerly member of the board of health; aged 59; died, December 2, of embolism.

Albert Theodore Swan, New York; Bellevue Hospital Medical College, New York, 1879; member of the Medical Society of the State of New York; on the staffs of the Willard Parker and Riverside hospitals; aged 66; died, December 6, of heart disease.

Henry Albert Suitor ⊕ South Deerfield, Mass.; Tufts College Medical School, Boston, 1906; president of the Franklin County Medical Society; on the staff of the Farren Memorial Hospital, Montague City; for several years member of the school board; aged 44; died, December 2, of cerebral embolism.

William Hitchcock Tukey, Major, U. S. Army, retired, Machias, Me.; University of Vermont College of Medicine, Burlington, 1891; served in the Spanish-American War and in the Philippine Insurrection; aged 56; died, November 19.

David Maxwell Graham, Duluth, Minn.; Jefferson Medical College of Philadelphia, 1870; Hahnemann Medical College of Philadelphia, 1877; Hahnemann Medical College and Hospital, Chicago, 1883; aged 80; died, November 29, of senility.

Cornelius Joseph McCormick ⊕ Waltham, Mass.; Medical School of Harvard University, Boston, 1876; formerly member of the school board; one of the founders of the Waltham Hospital; aged 70; died, December 4, of heart disease.

Page Alexander Gibbons ⊕ Morgantown, W. Va.; University of Maryland School of Medicine, Baltimore, 1897; formerly on the staff of the Sheltering Arms Hospital, Hansford; aged 49; died, December 2, of cerebral hemorrhage.

Oscar W. Doyle, Louisville, Ky.; University of Louisville (Ky.) Medical Department, 1901; member of the Kentucky State Medical Association; adjunct professor of therapeutics at his alma mater; aged 44; died, November 29.

Charles Hitchcock, New York; Medical Department of Columbia College, New York, 1872; member of the Medical Society of the State of New York; formerly on the staff of St. Luke's Hospital; aged 75; died, December 5.

Charles Adelbert Ballard, Harlowton, Mont.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1897; proprietor of the Ballard Hospital; aged 48; died of septicemia, November 26.

H. Everett Russell, Otisville, N. Y.; New York Homeopathic Medical College, New York, 1886; for six years on the staff of the Municipal Sanatorium; aged 60; died, November 22, following an appendectomy.

Elijah Brodie Meadows, Oxford, N. C.; University College of Medicine, Richmond, Va., 1901; member of the Medical Society of the State of North Carolina; aged 48; died, December 2, following a long illness.

Frank Austin Palmer ⊕ Morris, Ill.; Northwestern University Medical School, Chicago, 1897; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; died, December 2.

Sargent Francis Snow ⊕ Syracuse, N. Y.; Medical Department of the University of the City of New York, 1887; member of the American Otological Society; aged 62; died suddenly, December 9.

Vene P. Armstrong, Dallas, Texas; University of Louisville (Ky.) Medical Department, 1877; formerly city health officer; superintendent of the Westmoreland Sanatorium; aged 68; died, November 30.

Bernhard Segal, Philadelphia; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 55; died, November 26, following a long illness.

Newel R. Bradley, Saginaw, Mich.; Saginaw Valley (Mich.) Medical College, 1900; member of the Michigan State Medical Society; aged 65; died suddenly, November 27, of heart disease.

James Cary Stinson, Reagan, Tenn.; Vanderbilt University Medical Department, Nashville, 1882; member of the Tennessee State Medical Association; aged 70; died, November 30.

John M. Lenoir, Paris, Texas; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1891; aged 56; was shot and killed, November 30.

William Lloyd Friedman ⊕ Oakland, Calif.; Baltimore (Md.) Medical College, 1897; member of the Pacific Coast Oto-Ophthalmological Society; aged 51; died, December 1.

Ira Wellington Chapman ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1904; formerly professor of physiology at his alma mater; aged 47; died, November 23.

Edmund H. Madden, Absecon, N. J.; Jefferson Medical College of Philadelphia, 1866; member of the Medical Society of New Jersey; aged 81; died, November 27, of senility.

Samuel Jessup White, Jr., Unadilla, N. Y.; Medical Department of the University of the City of New York, 1888; village president; aged 61; died, November 23, of pneumonia.

Jay D. Nusbaum, Fort Wayne, Ind.; Medical College of Indiana, Indianapolis, 1905; aged 40; died, December 2, at St. Vincent's Hospital, Indianapolis, of heart disease.

C. Clayton Koons, Larned, Kan.; Kansas City (Mo.) Medical College, 1901; member of the Kansas Medical Society; aged 51; died in Nover [illegible] of cere [illegible] hemorrhage.

William Henry B [illegible] n: [illegible] School of University, Boston, [illegible] a [illegible] t; aged November 18, at th [illegible] monia.

Walter M. Hunter, Petersburg, Ind.; Medical College of Indiana, Indianapolis, 1891; member of the Indiana State Medical Association; aged 72; died, December 1.

George William Kirmse ⊕ Minneapolis; St. Louis (Mo.) University School of Medicine, 1907; aged 40; was drowned, November 25, in Lake Amelia, while hunting.

Joseph Kentling ⊕ Bloomington, Ind.; University of Louisville (Ky.) Medical Department, 1900; aged 46; died, December 4, following an operation for gallstones.

Greenberry B. Brown, Georgetown, Ky.; Medical Department University of Louisville, Ky., 1873; Civil War veteran; aged 80; died, November 29, of senility.

John Jacob Schoofs ⊕ Fond du Lac, Wis.; State University of Iowa College of Medicine, Iowa City, 1893; aged 57; died suddenly, December 3, of heart disease.

Fred Warner Stevens ⊕ La Grange, Ill.; College of Physicians and Surgeons, Chicago, 1906; aged 50; died, December 14, of lethargic (epidemic) encephalitis.

Joseph A. Groves, Selma, Ala.; Medical College of the State of South Carolina, Charleston, 1854; Confederate veteran; aged 93; died, November 26, of senility.

Harry Marion Lucas Sims, Poughkeepsie, N. Y.; Medical Department of Columbia College, New York, 1873; aged 72; died, November 21, of arteriosclerosis.

John Clancy Parish ⊕ Smithfield, Va.; Medical College of Virginia, Richmond, 1914; also a pharmacist; aged 34; died, November 30, following a long illness.

Michael Ambrose Carroll ⊕ Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1889; aged 57; died, November 30, following a long illness.

Samuel S. Smythe, Denver; Hahnemann Medical College and Hospital, Chicago, 1867; Civil War veteran; aged 84; died, November 16, of pneumonia.

Guy Virgil Baxley, Grovetown, Ga.; University of Georgia Medical Department, Augusta, 1900; aged 48; died, November 13, following a long illness.

Frank Sylvanus Knipe, Brooklyn; Long Island College Hospital, Brooklyn, 1900; aged 47; died, December 3, of pulmonary tuberculosis.

Walter Eugene Bongartz ⊕ Westpoint, Me.; Boston (Mass.) University School of Medicine, 1883; aged 61; died, November 17, of carcinoma.

J. C. Sellers, Spring, Texas; University of Louisville (Ky.) Medical Department, 1889; aged 58; died, November 12, following a long illness.

Joseph Aloysius Gallagher, Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1901; aged 49; died, November 29.

John M. Sease, Little Mountain, S. C.; University of Maryland School of Medicine, Baltimore, 1886; aged 62; died, November 28.

Charles Henry Tripp ⊕ Clinton Corners, N. Y.; Bellevue Hospital Medical College, New York, 1881; aged 67; died, November 21.

Webster Coleman Smith, Franklin Grove, Ill.; Rush Medical College, Chicago, 1885; aged 82; died, December 6, of senility.

Fred Yonkers, Zeeland, Mich.; Saginaw Valley (Mich.) Medical College, 1902; aged 64; died, November 30, of heart disease.

John M. Egan ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1907; aged 40; died, November 30.

William A. Charter, Marion, Ohio; Washington University School of Medicine, Baltimore, 1874; aged 71; died, December 4.

John Bunyan Spratt, Mount Sterling, Ky.; Jefferson College of Philadelphia, 1857; aged 96; died recently, of senility.

Hardin Wilcoxson, Loami, Ill.; American Medical College, St. Louis, 1880; aged 72; died, December 4, of pneumonia.

Andrew Konzelman, St. Louis; Barnes Medical College, St. Louis, 1899; aged 70; died, November 23, of pneumonia.

Alvin Ethelbert Cowan ⊕ Ensley, Ala.; Birmingham (Ala.) Medical College, 1912; aged 43; died, November 27.

Edward Lee Johnson, Cooperstown, N. Y.; Albany (N. Y.) Medical College, 1891; aged 54; died in November.

William B. Kuehne ⊕ Cleveland; Jenner Medical College, Chicago, 1900; aged 64; died in November.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

GLY-SO-IODONATE

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of this report.

W. A. Puckner, Secretary.

In July, 1921, Charles E. Huchings requested consideration of Gly-So-Iodonate. He claimed to be a graduate of King's College of Medicine, London, but the registrar of that institution has written that his name does not appear on the college's medical register. The product, said to be a "chemical germicide-antiseptic," was "owned and controlled exclusively by the Wisconsin Medical Laboratory" which is at the present time claimed to be affiliated with the National Medical Research Laboratories, Milwaukee, Wis.

The composition of Gly-So-Iodonate was originally stated to be:

	Per Cent.
"Double distilled water	81
Alcohol	10
Glycerin	2
Solids	7
Percentage of solids as follows:	
Sodium Carbonate	2.50
Sodium Chlorid	1.60
Sodium Sulphate	0.65
Sodium Bicarbonate	0.40
Potassium Carbonate	0.15
Alumina Oxid	0.05
Calcium Sulphate	0.10
Magnesium	0.05
Boracic Acid	0.30
Potassium Iodid	0.30
Iodin	0.40
Corrosive Sublimate	0.50"

The method of preparation was given as follows:

"Composition and chemicals used in the preparation of Gly-so-iodonate; First Part:

Sodium Carbonate	36.00
Sodium Chlorid	23.00
Sodium Sulphate	10.06
Sodium Bicarbonate	6.02
Potassium Carbonate	2.18
Alumina Oxid	1.50
Calcium Sulphate	2.72
Magnesium Sulphate	1.52
Boracic Acid	5.00
Potassium Iodid	5.00
Iodin	7.00

"The method of completing the solution is as follows, Second Part: 3,219 c.c. of double distilled water is brought to a boiling point of 225 degrees (F). After boiling for a period, 20 grains of corrosive sublimate is added—solution is again held at boiling point, then the fused chemicals (part one) is added—boiling is again held for a period, after which the whole is submitted to a special process of distillation. After cooling to a certain degree determined by years of trials, 450 c.c. of 190° alcohol is added—again distilled, and the 115 c.c. of C. P. glycerin is added—final process is another special distillation for bottling."

"The above quantities are used for making one gallon."

The Council considered the information, and the following points were presented to the Wisconsin Medical Laboratory:

I. *Composition Not Correctly Declared.*—Obviously the formula presented was an impossible one: (1) any free iodin added in accordance with the formula would react with the alkali carbonate to yield alkali iodid and alkali iodate, and (2) mercuric chlorid would react with alkali iodids to give an alkali mercuric iodid. Gly-So-Iodonate, moreover, was referred to as a distillate, for in the process of manufacture, as submitted, the solids of the formula were dissolved in water, the solution distilled and the glycerin and alcohol added to the distillate. It was safe to predict that, no matter what the interactions of the ingredients may have been, the salts of sodium, potassium, magnesium, calcium, etc., would not be sufficiently volatile to permit their distillation with the water vapors.

II. *Formula Needlessly Complex and Irrational.*—The finished Gly-So-Iodonate, a "non-poisonous" "distillate," according to the submission of the manufacturer, was a product "presenting and maintaining a dual duty of germicide and healer." It was said not to be deteriorated by "light waves, sun rays, heat and cold" and it was claimed, furthermore, that "the various chemicals are so arranged to either [sic] take up all tissue fluids and hold them in suspension, against growth, or dry up unessential exudates," "each [chemical] fulfilling a specific action within the exudates and sebums common with most wounds." In the end no evidence was submitted to demonstrate the superiority of the mixture over that of a solution of the well-known potassium mercuric iodid of equivalent concentration.

III. *Label Not Acceptable and Name Not Descriptive.*—The amount of poisonous material, mercury compound (potassium mercuric iodid?) in a given quantity was not declared on the label and the name Gly-So-Iodonate is not descriptive of the potent ingredient of the mixture.

The manufacturing company made a reply to this report, but the reply contained *no statement of facts* which altered the conflicts of Gly-So-Iodonate with the rules which govern the acceptance of products for inclusion in New and Nonofficial Remedies.

RECENT DEVELOPMENTS

From recent developments, it is evident that an active selling campaign for Gly-So-Iodonate is being directed toward factories and large commercial concerns by the National Medical Research Laboratories. The original Gly-So-Iodonate, with its statement of composition but slightly changed, is now claimed to be the base of three additional products supplied by the same firm—"Iomer-Mensal for nose and throat work, Saline-Merammo for genitourinary work, and Gly-So-Dental for dentistry and mouth wash."

In reference to the last mentioned products, a notice appears on the present-day label of Gly-So-Iodonate, which reads, "CAUTION-G. S. I. is especially prepared for surgical work and for all infections other than found in Ear, Nose and Throat or Genito-Urinary tract. Our various fluids are not interchangeable."

Specimens of Gly-So-Iodonate and the allied products were recently obtained in the open market, and the statements of composition of these are herewith reprinted from the labels. A glance suffices to *show the incomplete and meaningless statements of composition.* A comparison of the claimed composition of the products shows them to be complex mixtures varying slightly in the amount of this or that and with new ingredients added at will. The three new products have the potassium salts, stated to be in Gly-So-Iodonate, omitted; all show an increase over Gly-So-Iodonate in chlorid content and iodin (a claimed iodin increase of 2.55 per cent. in the case of Saline-Merammo). A few new ingredients are declared, such as small amounts of sodium and ammonia in Saline-Merammo, sodium and magnesium in Iomer-Mensal, and sulphids in Gly-So-Dental. All four products have *one property in common*: On opening a bottle, there is a distinct odor of iodoform, evidently due to the interaction of iodin and alcohol in alkaline solution.

GLY-SO-IODONATE

Volume	Per Cent.
Distilled Water	79
Alcohol	10
Glycerin	4
Minerals, Alkaloids, etc.	7
Per Cent. of Minerals, Alkaloids, Etc.	
Corrosive Sublimate	0.75
Iodin	0.55
Chlorids	2.10
Vegetable Alkaloids	2.05
Platinum	0.45
Potassium Salts	1.10

IOMER-MENSAL

Volume	Per Cent.
Distilled Water	74.50
Alcohol	11.50
Glycerin	4.50
Minerals, Alkaloids, etc.	9.50
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.30
Iodin	1.05
Vegetable Alkaloids	2.15
Platinum	0.10
Chlorids	3.70
Sodium	1.25
Magnesium	0.75

SALINE-MERAMMO

Volume	Per Cent.
Distilled Water	73
Alcohol	11
Glycerin	4
Minerals, Alkaloids, etc.	12
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.81
Iodin	3.10
Sodium	0.74
Ammonia	0.30
Vegetable Alkaloids	2.15
Chlorids	4.50
Platinum	0.40

GLY-SO-DENTAL

Volume	Per Cent.
Distilled Water	76
Alcohol	9.50
Glycerin	5.50
Minerals, Alkaloids, etc.	9
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.60
Iodin	0.75
Chlorids	4.80
Vegetable Alkaloids	1.50
Platinum	0.25
Sulphids	1.10

Gly-So-Iodonate, the so-called base of the other preparations as now marketed, is claimed to differ from that formerly sold in that (1) in the new product there is an alleged increase of both mercuric chlorid and iodin; (2) unnamed chlorids and unnamed potassium salts are now claimed instead of the defined sodium and potassium salts, alumina oxid, etc.; (3) platinum is claimed as a new ingredient of the product, and (4) contrary to known principles of compatibility, vegetable alkaloids are claimed as new ingredients.

No statement is made as to why platinum, which has found no use in medicine, is desirable, or as to why it is claimed to be present in a quantity of nearly one half of one per cent. Obviously, there could hardly be present the alleged 0.45 per cent. either of platinum or of a salt of platinum, for this amount in one quart alone would be worth at the present market price over fifteen dollars, a sum between three and four times as great as that asked for Gly-So-Iodonate itself.

In view of the improbability of these claims, the Chemical Laboratory of the American Medical Association made the *following determinations on Gly-So-Iodonate:*

	Per Cent. By Weight
Vegetable alkaloids	0.001
Mercury	0.026
Mercury (0.026%) Calculated as Mercuric Chlorid (Corrosive Sublimate)	0.036
Platinum less than	0.01

The above analysis confirmed the suspicion that there were no alkaloids present; mercury was present in less than one-twentieth of the claimed amount, and platinum was present *in less than one forty-fifth of the asserted amount!*

The original objection that the name of the product is not suggestive of the most potent ingredient still holds. The analysis made in the laboratory showed that there was *no free iodin,* but combined iodin, in the form of iodid and iodate. A commonly used method for the extemporaneous preparation of potassium mercuric iodid is to mix mercuric chlorid with potassium iodid. In view of this, and in consideration both of the statements made on the new and the old labels, and the findings of the association's laboratory, it is evident that *the mercury contained in Gly-So-Iodonate is present in form of a complex salt* such as potassium mercuric iodid and not as "corrosive sublimate" as declared. No complex compound of mercury is mentioned in the statement of composition: instead the asserted presence of free iodin is stressed, and the name itself is suggestive of iodin rather than mercury.

In the advertising that is being sent to commercial concerns, *the* National Medical Research Laboratories make many claims for the superiority of Gly-So-Iodonate and its allied products:

> G-S-I is, we feel, the BACTERICIDE the medical world has searched for since the days of LISTER.
>
> Indicated in every case which formerly called for Iodine, Phenol, Silver Nitrate, or Caustics.
>
> G-S-I is a bactericide of enormous potency. Its effect upon tissues is salubrious. Its application is simple, clean, non-irritating and not involved in the tedious, expensive and complicated technique of other antiseptics. Its recent discovery makes its far reaching possibilities as yet unknown, and much of its amazing promise is still in the hands of the pioneers in its use.

It is claimed that many Milwaukee firms are users of the product. There are also reprinted letters of recommendation *from general managers, safety engineers, and even from a* nurse and a physician of these commercial plants. These recommendations are of the unscientific and uncritical type common to such testimonials.

To summarize; Gly-So-Iodonate is not the scientific masterpiece it is claimed to be; the statement of composition is obviously incorrect; the product is essentially semi-secret; its actions are virtually those of a solution of potassium mercuric iodid to which has been added a chemical hodgepodge; it is marketed under a nondescriptive and misleading name. In view of these facts, the Council has authorized publication of this report declaring Gly-So-Iodonate inadmissible to New and Nonofficial Remedies.

Correspondence

JOURNAL EDITORIALS—A PRACTICAL SUGGESTION

To the Editor:—It may possibly interest you to learn of an unsuspected but extremely valuable use to which certain editorials of THE JOURNAL have been put. For the last seven years I have cut out, mounted, filed and catalogued editorials on current physiologic subjects. From time to time during the course in physiology at Western Reserve University Medical School, sets of editorials which bear on topics under consideration are placed in the student laboratory. Students are encouraged to read these whenever a few unoccupied minutes become available. Their value as an adjunct to teaching is at least fourfold:

1. Each editorial furnishes a short, complete discussion on a single or relatively few points, susceptible of being read, digested and assimilated in five minutes or less. This is a great aid in fixing ideas.
2. They present physiologic subjects clearly and from interesting medical standpoints which are often quite different from textbook discussion.
3. They present digests or reviews of recent work which does not find its way into textbooks until several years later.
4. They convert the five to fifteen minute intervals that so often occur while waiting for lectures or during laboratory work from intervals of idleness to intervals of useful study and thereby impress the fact so difficult to learn, viz., that in a busy life a great deal of study may be accomplished by making appropriate use of idle moments.

The eagerness with which new sets of editorials are awaited by students, and the avidity with which they are made use of, make me feel that they are an adjunct in physiologic teaching that I should not wish to sacrifice.

I am wondering whether a similar system of systematic filing, indexing and *reading* JOURNAL editorials relating to various phases of the medical sciences might not prove a practical method by which the busy practitioner, no matter where located, would be able not only to review the medical sciences from time to time, but to keep abreast of the time as well.

CARL J. WIGGERS, M.D., Cleveland.
Professor of Physiology, Western Reserve
University School of Medicine

"CATARACT EXTRACTIONS PERFORMED BY PROF. JOSEF MELLER OF VIENNA 1919-1921"

To the Editor:—I have just received the presession book of the Section on Ophthalmology containing the paper on cataract read by Dr. Hans Barkan at the recent annual session of the American Medical Association [THE JOURNAL, this issue, p. 2086]. I have not personally had the pleasure of meeting either Dr. Barkan or Dr. Meller.

The facts are not Dr. Barkan's but are those of Dr. Meller, and they seem to me to deserve some comment. The paper deals with 249 extractions; of these, 174 are treated in a separate group as uncomplicated. The remainder, amounting to no less than 30 per cent., are treated as complicated. Why reject to a category on which no reputation is to be based as many as 30 per cent.? It is more than three times as many as we encounter in practice, unless we are scouring up the cases rejected by every one else. This was not the case at Vienna. In the next place, I wish to draw attention to the table showing the details of this 30 per cent. It is clear that the diagnosis of complicated was made some time after operation, as the facts could not be diagnosed before operation in many instances, and would be very difficult to diagnose when the patient was leaving the hospital in some cases.

War and postwar conditions do not explain the reason why so huge a percentage as 30 has been relegated to this category.

Any one can make out nice statistics if he waits till the patients are leaving the hospital. He can then reject 30 per cent. of the cases, putting them into the category of complicated, implying that they were complicated before operation. Why include black cataract as complicated?

The writer refers to a paper by Dr. Hardy, which I have not seen, and to another by Dr. Fisher of Chicago on operations I did at two clinics. I know the facts of Dr. Fisher's papers. I wonder that Dr. Barkan has not more sense of the ridiculous, as Dr. Fisher's is (though not directly) a reply to Dr. Hardy and to other such papers; and, if I may say so, it wipes the sink with them.

Dr. Barkan makes allowances for my psychology, etc., as regards operating in the United States in unfamiliar surroundings. I do not require such consideration, as I have no "nerves" and have equal confidence in myself in any surroundings. But I do appeal for fair play, and I feel that, taken all round, the American people will give it to me or any one else.

Dr. Barkan and some others expect me to see the patients just before operation; to operate; all records and after-treatment to be done by whom I do not know, the patients being not even seen by me after operation. Then he puts forward such statistics as any one thinks fit. On the other side, he puts facts given by Dr. Meller, who has made out all the facts himself. Have such conditions ever been asked of any man in any department of surgery? Yet they are asked of me, and I am asked to treat them as fair. We do not say much, but we all know there is much more in medicine than science and art. There is, for instance, the demon rivalry.

Dr. Barkan allows Meller to throw out 30 per cent. as complicated. He does not allow me to throw out any, though if Dr. Meller had been operating in the cases reported by Dr. Hardy on the Vienna showing he would have thrown out 50 per cent. as complicated and 20 per cent. as inoperable.

Statistics made out as in the paper under consideration and as Dr. Barkan wants lead nowhere and convince no experienced surgeon. To convince any one, the work has to be seen first hand and seen throughout, good and bad, as used to be the case at my Indian clinic. One might as well think to stop the tide with a broom as to stem the progress of intracapsular extraction by such methods as Dr. Barkan and Dr. Hardy adopt.

HENRY SMITH, M.D., C.I.E., Sidcup, Kent, England.
Lieutenant Colonel, Indian Medical Service.

"PROBLEMS OF LIFE IN THE TROPICS"

To the Editor:—I have been much interested in the editorials on the effects of high temperatures and humidities. I have been in accord with all but the last, on "Problems of Life in the Tropics" (THE JOURNAL, December 1, p. 1880). This speaks of the "needs today" but apparently overlooks recent investigations in the field, which were made in our own country.

I am at a loss to know why a work published in 1905 stating that the rise in body temperature is virtually independent of the dry bulb temperature should have been followed in view of the advancement of our knowledge both in England and in America since that date.

The work of the U. S. Public Health Service and U. S. Bureau of Mines, cooperating with the American Society of Heating and Ventilating Engineers, I believe, sufficiently

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

Colorado: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Indiana: Indianapolis, January 8. Sec., Dr. W: T. Gott, State House, Indianapolis.

National Board of Medical Examiners: Written Examinations in Class A Medical Schools. Part I, February 13-15, 1924. Secretary, J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for this examination must be made on or before January 15, 1924.

New York: Albany, Buffalo, New York and Syracuse, January 28-31. Ass't, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

North Dakota: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oregon: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

Pennsylvania: Philadelphia, January 29–February 2. Sec., J. George Becht, M.D., State Capitol, Harrisburg.

South Dakota: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

Washington: Olympia, January 8. Sec., Mr. William Melville, Olympia.

Wisconsin: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

INVESTIGATION OF LICENSES IN CONNECTICUT

The Journal has previously published the records of Frank Edward Gavlas, Donald W. Stewart and George E. Sutcliffe. This week, the report concerns the record of Isidor Yochelman, involved in the investigation.

Isidor Yochelman

In the Federation Bulletin of January, 1918, appeared an account of certain attempts to secure medical registration in Massachusetts by fraudulent methods. The first mentioned was one Isidor Yochelman. It appears that Yochelman applied for admission to medical licensure in Massachusetts in September, 1915, at which time he submitted the statement that he was a graduate of a school in Russia. At that time, Massachusetts did not require graduation in medicine as a prerequisite for examination, so an admission card to the examination was issued to him. It developed later that Yochelman had been admitted to the Tufts College Medical School of Boston in the autumn of 1914 on the strength of a certified statement of preliminary education issued by the Westerleigh Collegiate Institute of 386 Richmond Terrace, New Brighton, Staten Island, New York, later shown to be worthless. Yochelman had paid the Tufts school six months' tuition in advance, but did not appear for instruction. On the morning of the Massachusetts examination, Sept. 15, 1915, the examination card that was issued to Yochelman was presented by a man who was suspected of impersonating him. This man gave his name as Dr. Robert Malcolm, claiming residence in New Jersey. He attempted to explain how he had received the card issued to Yochelman. Later, Yochelman is said to have appeared at the Tufts Medical College to take the course in medicine for which he had paid. He was arrested on a charge of perjury, tried, convicted and sentenced to fifteen months in jail.

According to reports, Yochelman entered the Middlesex College of Medicine and Surgery, Sept. 20, 1917. He failed to supply credentials showing that he had satisfactorily completed the years of medical education which he claimed, but agreed to supply them later. While in this school his career was checkered with highly colored incidents and he failed to secure a diploma.

Yochelman is next discovered with a diploma from the St. Louis College of Physicians and Surgeons dated 1920, and claiming attendance in that school during the year 1919-1920. He was licensed by the eclectic board of Connecticut in July, 1920, notwithstanding his failure to produce credentials showing that he had actually passed the first three years of college work at any institution. In 1920, he practiced in New Haven; for a part of 1920, he was in Boston, and later he began to practice in Bridgeport. He received a license in pharmacy, June 29, 1921, in Connecticut by reciprocity with Massachusetts, in which he also held a pharmacy license. This license was revoked by the board one month after it was issued, following inspection by an investigator of the pharmacy board. Yochelman made no protest to the revocation of this license.

As has previously been mentioned, in July, 1923, the legislators of Connecticut passed a bill to validate the licenses of eighteen physicians who were under suspicion. This bill was vetoed by the governor, after which the eclectic examining board gave the candidates a second opportunity to pass, and Yochelman was among those passed. It was deemed necessary by the attorney general of the state that a new examination be passed, because the St. Louis College was not on the approved list for Connecticut for 1920, when Yochelman first passed. Then came the present exposure, which has resulted in the revocation of Yochelman's license along with those of seventeen other physicians. Yochelman's attitude has been remarkable. He said: "The eighteen will fight this thing to a finish. We have not had our licenses revoked, and they will not be revoked. Nobody has the power to revoke them." But the reports state that they have been revoked.

In his application for admission to the Middlesex College, Yochelman stated that he was born at Vilna, Russia, Jan. 28, 1891, and that his preliminary education consisted of eight years at the Hebrew Russian Vilna School. He, however, had no certificate in support of this statement.

To summarize: The educational record of Isidor Yochelman is so bestrewn with doubt and with evident falsification that to grant him a license to practice any kind or form of medicine is beyond comprehension; but the Connecticut eclectic board not only passed him once, but passed him again when state action made this necessary.

CLASSIFICATION OF THE DENTAL SCHOOLS

Following is a list of the dental schools in the United States as classified by the Dental Educational Council of America.

Sept. 15, 1923

Schools are listed in alphabetical sequence by states for convenience only, the order of presentation within each class having no significance.

CLASS A

University of California Dental Department	San Francisco
University of Southern California College of Dentistry	Los Angeles
Chicago College of Dental Surgery	Chicago
Northwestern University Dental School	Chicago
University of Illinois College of Dentistry	Chicago
State University of Iowa College of Dentistry	Iowa City
University of Louisville College of Dentistry	Louisville, Ky.
Harvard University Dental School	Boston
Tufts College Dental School	Boston
University of Michigan College of Dental Surgery	Ann Arbor, Mich.
University of Minnesota College of Dentistry	Minneapolis
St. Louis University School of Dentistry	St. Louis
Washington University School of Dentistry	St. Louis
Creighton University College of Dentistry	Omaha
University of Buffalo College of Dentistry	Buffalo
Western Reserve University Dental School	Cleveland
Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania	Philadelphia
University of Pittsburgh School of Dentistry	Pittsburgh
Vanderbilt University School of Dentistry	Nashville, Tenn.
Baylor University College of Dentistry	Dallas, Texas
Marquette University College of Dentistry	Milwaukee

CLASS B

College of Physicians and Surgeons of San Francisco	San Francisco
University of Denver School of Dentistry (Formerly Colorado College of Dental Surgery)	Denver
Georgetown University Dental Department	Washington, D. C.
Howard University Dental College	Washington, D. C.
Atlanta-Southern Dental College	Atlanta, Ga.
Loyola University School of Dentistry	New Orleans
Tulane University of Louisiana School of Dentistry	New Orleans
University of Maryland School of Dentistry (Baltimore College of Dental Surgery was merged with it, June 15, 1923)	Baltimore

Kansas City-Western Dental College......Kansas City, Mo.
University of Nebraska College of Dentistry.........Lincoln
Ohio State University College of Dentistry..Columbus, Ohio
North Pacific College of Dentistry............Portland, Ore.
Temple University Dental School..............Philadelphia
(Formerly Philadelphia Dental College)
Meharry Dental College...................Nashville, Tenn.
University of Tennessee College of Dentistry.Memphis, Tenn.
Medical College of Virginia School of Dentistry
.....................................Richmond, Va.

CLASS C

Cincinnati College of Dental Surgery.............Cincinnati
Texas Dental College.......................Houston, Texas

UNCLASSIFIED

Indiana Dental College*......................Indianapolis
Columbia University School of Dentistry†.......New York
(Incorporated with the College of Dental and Oral Surgery of New York)
New York College of Dentistry*.................New York
Ohio College of Dental Surgery*................Cincinnati
(Affiliated with the University of Cincinnati, July 1, 1923; early complete merger in prospect)

MERGED RECENTLY WITH UNIVERSITIES

Colorado College of Dental Surgery.................Denver
(Merged with Denver University, June 15, 1922)
Baltimore College of Dental Surgery..............Baltimore
(Merged with the Dental Department of the University of Maryland, June 15, 1923)
College of Dental and Oral Surgery of New York.New York
(United with the School of Dentistry of Columbia University on July 1, 1923)

DISCONTINUED SINCE THE PUBLICATION OF THE CLASSIFICATION IN 1920

(1921) George Washington University Dental School
.................................Washington, D. C.
(1923) University of West Tennessee Dental Department
.....................................Memphis, Tenn.

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* Classification postponed until the next meeting of the council.
† Classification postponed until reorganization has been completed.

Montana April Examination

Dr. S. A. Cooney, secretary, Montana Board of Medical Examiners, reports the written examination held at Helena, April 3-5, 1923. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1901) 81.1,	(1921)	91.5
State University of Iowa College of Medicine		(1919)	84.1
University of Louisville Medical Department		(1908)	82.1
University of Michigan		(1920)	85.7
University of Minnesota		(1913)	86.5
John A. Creighton Medical College		(1900)	85.8
University of Toronto Faculty of Medicine		(1922)	80.1

College	FAILED	Year Grad.	Per Cent.
Ensworth Medical College		(1909)	42.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine		(1917)	Idaho
Barnes Medical College		(1903)	Idaho

Utah April Examination

Mr. J. T. Hammond, director, Utah Department of Registration, reports the written examination held at Salt Lake City in April, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 4 candidates examined, 3 passed and 1 failed. Six candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1922)	76.1
University of Pennsylvania	(1921) 79.9,	(1922)	86.8

College	FAILED	Year Grad.	Per Cent.
National University, Athens, Greece		(1916)*	35.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School		(1922)	Dist. Colum.
Rush Medical College	(1919)	(1920, 3)	Illinois
St. Louis University School of Medicine		(1920)	Missouri

* Graduation not verified.

Book Notices

USEFUL DRUGS. Prepared Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Sixth Edition. Cloth. Price, 60 cents. Pp. 180. Chicago: American Medical Association, 1923.

As the known drug and biologic remedies increased to a formidable number, it became generally acknowledged that a critically restricted list would prove invaluable, and that a thorough knowledge of a few drugs would prove more advantageous than a smattering knowledge of many. In 1913, the Council on Pharmacy and Chemistry first compiled a list of medicaments that might be used as the basis of instruction in materia medica and related subjects, and as a basis for examination in these subjects by state medical examining and licensing boards. Many schools have adopted the book as a textbook, and many state examining and licensing boards confine their questions to the drugs listed. Since the first issue, an effort has been made to keep the book abreast of therapeutic progress, and it has gone through various editions. Largely because of this frequent editing, which has made each edition a reliable index to the new advances in materia medica, the general practitioner has come to look on "Useful Drugs" as a convenient and concise guide.

The sixth edition is now off the press. There have been omissions for various reasons. In the main, products were omitted because an accumulation of evidence has shown the relative unimportance of some formerly accepted preparations, or because some medicaments could be replaced to advantage by better or simpler ones still retained. On the other hand, there have been important admissions: anhydrous *d*-glucose for use in hemorrhage, shock, fevers, etc.; chaulmoogra oil and chaulmestrol for use in leprosy; insulin for use in diabetes; luminal, found to be advantageous in the treatment of epilepsy; neocinchophen, which has some advantages over cinchophen; quinidin sulphate, which, in clinical use, has given evidence sufficient to warrant its inclusion; diphtheria toxin-antitoxin mixture and standardized rabies virus. All of these new substances are described critically and briefly, and a statement of their actions, uses and dosage is given. The actions, usage and dosage statements of the articles already in the book are revised so as to bring them up to date.

In addition to these changes, the discussion of pharmaceutic preparations, such as confections, honeys, fatty oils and volatile oils, has been transferred to the appendix. The therapeutic index has been revised; a series of tables of metric and apothecary equivalents has been added. These changes, it is believed, have materially increased the value of the book. "Useful Drugs," Sixth Edition, should be a most valuable and usable book for the physician and the medical student.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. Volume V: Military Hospitals in the United States. By Lieut. Col. Frank W. Weed, M.C., U. S. Army. Prepared under the direction of Major-Gen. M. W. Ireland, M.D., Surgeon General of the Army. Cloth. Price, $2.25. Pp. 857, with 204 illustrations. Washington: Government Printing Office, 1923.

This volume has been prepared largely by Lieut. Col. Frank W. Weed, although various chapters represent work of specialists in certain branches. The book begins with a history of military hospitals, and describes their growth up to the time of the World War. It then outlines the method of providing hospitals and supplies. The section on construction and improvement of hospitals is especially well illustrated. Eight chapters are devoted to the organization, administration and control of military hospitals, taking up such matters as water supply, sewage disposal, transportation and demobilization. Part four deals with the types of hospitals from the camp base hospital through the various general hospitals, aviation hospital, aeroplane, ambulance and embarkation and debarkation hospitals. The final section includes a description and discussion of each of the institutions established during the World War for which records ar [illegible] ble. These include maps of the institutions, photographs when available, and statistics as complete as possible. The volume is well printed, the photographs carefully selected, and the book, as a whole, is a credit to the medical department of the army.

Anatomical and Physiological Studies on the Growth of the Inner Ear of the Albino Rat. By Tokujiro Wada. Memoirs of the Wistar Institute of Anatomy and Biology, No. 10. Paper. Price, $4. Pp. 174, with illustrations. Philadelphia: The Wistar Institute of Anatomy and Biology, 1923.

In the minuteness and care with which each anatomic structure in the cochlea has been studied, this memoir is typical of the work published from the Wistar Institute. There appears to be no cell in the acoustic apparatus of the albino rat that has escaped measurement, not once but in each cochlear turn and at varying ages. How painstaking and thorough it is may be partly realized when one states that there are 113 tables of microscopic measurements of the anatomic cells which make up the cochlea, mostly made by the author. Two examples may be given. In fourteen rats varying in age from 1 day to 546 days there are radial measurements of the membrana tectoria in the four turns of the cochlea; and there are given the computed diameters of the cell bodies and their nuclei in the spiral ganglion according to the turns of the cochlea in the same number of rats. Many of these tables are charted so that the results can be graphically shown, enabling the reader more easily to grasp the differences at various ages. In addition there are figures showing the morphologic changes in each part of the tympanic wall of the cochlear duct during growth. The final chapter is devoted to a study of the growth of the largest nerve cells in the vestibular ganglion.

The albino rat has no hearing at birth, and first shows reaction to sounds between the ninth and the twelfth day. Dr. Wada investigated the cochlear changes in rats at various ages (from 1 day to 546 days), including two rats 9 days old, one of which reacted to sound and the other did not. Therefore, in this study we have a presentation of developmental changes that should help to make clear the anatomic structure necessary for hearing in the white rat.

The technic employed in fixing was that which Yoshii had found so advantageous in his cochlear investigations and which is recognized as one of the most suitable to study the structure of so delicate an organ. It leaves, however, something still to be desired, especially when one studies such a soft structure as the tectorial membrane and tries to fix its exact position relative to the spiral organ. This membrane is always more or less altered by all fixing agents now in use, and must be so if, as Hardesty says, it consists of fine fibrils embedded in a gelatinous matrix. To get its real structure, one would have to fall back on some such method of examination as Hardesty employed.

The author clearly shows that the inception of hearing coincides with the development not of one but of each constituent of the spiral organ of Corti, and this development occurs rapidly at the age at which the animal hears. The papilla in the lower turn is the first part to reach a high degree of differentiation. This differentiation passes rapidly from the basal coil and travels to the apex. A rat which reacts to only a note of high pitch will one or two days later react to a note of low pitch, a result which accords with the well known fact that the papilla in the lower turn responds to sounds of high pitch, while in the upper turn it responds to sounds of low pitch.

That the papilla is more differentiated in the hearing rat is well exemplified by a comparison of the histologic structure of the cochlea in two rats 9 days old, one of which could hear and the other could not. This consists not in the detachment of the tectorial membrane from the papilla spiralis, but in the degree of differentiation of the constituents of the papilla, the differentiation of the hair cells and the pillars of Corti, and the opening up of the tunnel of Corti and the appearance of Nuel's space. In the hearing rat the tectorial membrane has reached the outermost row of the hair cells, while in the nonhearing rat it has not yet reached the second row of the cells. It is not the freeing of the tectorial membrane from the papilla spiralis that is necessary to the appearance of the hearing reflex, but the differentiation of the papilla, and its changes in form and position under the membrana tectoria. The author's tables confirm the accepted view that the cells composing the organ of Corti, the total breadth of the basilar membrane, the breadth of the zona arcuata, the height of the tunnel of Corti, increase from base to apex. It is to be regretted that some details have not been given on the ligamentum spiralis externa, which increases in size as one passes from apex to base—a fact which may have a bearing on the tension of the basilar membrane and on its function.

The relation of the membrana tectoria to the papilla spiralis was carefully studied. In the nonhearing rat it is slightly shorter, and fine fibers connect it to the papilla and to Hensen's prominence. In the hearing rat these fibers are absent and the membrane does not reach Hensen's prominence, as it appears to do in the pig. In the hearing rat in the earliest ages there is still a connection of the membrane with the terminal frame of the lamina reticularis. What happens as development progresses to this connection is a point on which opinions differ. Some hold that this connection remains through life; others assert that the membrane projects free in the endolymph. In the adult cochlea, Dr. Wada has never seen this connection, nor did he observe a connection of the membrane with the hairs of the hair cells. In the young rats, at 15 days, one very often may see on the terminal frame the broken remainder of the connecting threads. Whether this break arises through natural development or is the result of artificial manipulation, he is unable to say. His results in the rat agree in the main with those of Hardesty in the pig, who, however, obtained a tectorial membrane floating free in the endolymph at its outer zone. The assertion that, in an animal capable of hearing, the membrana tectoria is never connected with the papilla spiralis, is not supported by his observation. He points out that the freeing of the outer zone of the membrane is not absolutely necessary for the mediation of auditory impulses, for in the cochlea of birds the membrane remains through life attached to the epithelial ridge.

We know of no work on the anatomy of the cochlea in which so many details have been so carefully studied. While the value of this monograph may not be easily grasped by the ordinary reader, the future investigator of the auditory organ will find this wealth of detailed information most useful and stimulating. It is an investigation well worthy of a place in that series of monographs which has given the "American Anatomical Memoirs" a distinguished place in anatomic literature.

Nouveau traité de médecine. Publié sous la direction G. H. Roger, Fernand Widal, P. J. Teissier. Secrétaire de la rédaction: M. Garnier. Fascicule XII: Pathologie de l'appareil respiratoire (suite). Cloth. Price 45 francs. Pp. 596, with 66 illustrations. Fascicule XV: Affections des glandes salivaires, du pancréas et du péritoine. Cloth. Price, 40 francs. Pp. 568, with 135 illustrations. Paris: Masson et Cie, 1923.

This volume of the system of medicine edited by Roger, Widal and others would be a credit to any similar work. It is most complete, encyclopedic in nature, and at the same time is not verbose. It does not restrict itself to presenting only the point of view of modern French medicine, but embraces all points of view available at the time of its publication. It is, indeed, commendable to find a French work that gives English, German, Italian and other foreign references as well as those written in the French language. The work is practical, and contains no fantastic and unproved theories, which are commonly presented as proved and accepted facts in so many modern French medical works. The book is well written. The illustrations are numerous and are well done, especially the plates of the pathologic specimens presented under pulmonary tuberculosis. Throughout the work the pathologic-anatomic side is presented in a most thorough and satisfactory fashion. Letulle and Halbron, in their treatise on pulmonary tuberculosis and nontuberculous pulmonary infections, have in no way neglected the development of their subject. A concise and accurate history of the white plague is given. The authors have inserted such topics as traumatism and tuberculosis, gas intoxication (war gassing) and its relation to tuberculosis, and wounds of the chest and tuberculosis.

This material is drawn from the French war experiences. The symptomatology, physical signs, physical examination, roentgen ray and spirometry are given completely. A thorough review of the therapeutic measures in vogue is given, and the worth of such methods closely scrutinized.

Volume XII is devoted to the salivary glands, pancreas and peritoneum. The bibliography is international, and the book is well illustrated. The section on the salivary glands, by Parmentier and Chabrol, makes very interesting reading. The anatomy, physiology, chemistry of the salivary secretions, and pathologic physiology are covered in detail. Such conditions as Mikulicz' syndrome, actinomycosis and syphilis of the salivary glands are in no way neglected because of their rarity. The authors accept the cause of Mikulicz' syndrome to be either tuberculosis or syphilis. In the section devoted to the pancreas, a complete and comprehensive review of the pancreatic functional tests is given, followed by a critical discussion of their relative merits. When diabetes mellitus is discussed, one finds a review of the literature prior to the advent of insulin. Unfortunately, this work was written before insulin, and this important chapter in the history of diabetes is missing. It is indeed striking that in the consideration of the treatment of diabetes only the general rules of procedure are given; no details regarding the dietary regimen or the combating of the accompaning acidosis are to be found. Such details in the treatment of diabetes certainly should have a place in a system of medicine.

PRACTICAL LOCAL ANESTHESIA AND ITS SURGICAL TECHNIC. By Robert Emmett Farr, M.D., F.A.C.S. Cloth. Price, $8. Pp. 529, with 219 illustrations. Philadelphia: Lea & Febiger, 1923.

This book is divided into three parts. In Part 1 is discussed the general subject of anesthetics, and the equipment which the author uses in local anesthesia, with the general technic and the anatomy of the sensory nervous system. Part 2 deals with local anesthesia in surgery of all regions of the body except the abdomen, while Part 3 takes up local anesthesia of the abdominal wall and cavity. The statement that ether itself is not an anesthetic agent and that its anesthetizing properties are due to so-called impurities is incorrect, and as ethanesal, a supposed improved ether, is not a substance of definite composition, it should not be substituted for pure ether as a general anesthetic. As a rule, the author uses the infiltration method of producing local anesthesia in preference to so-called nerve blocking, on account of its greater simplicity and ease of application. In addition to the method of producing local anesthesia for a particular operation, the author frequently enters into a discussion of the technic of the operation itself, and numerous case records are cited illustrating the points brought out. In his descriptions, the author has given the most careful attention to the minutest detail in the hope that thereby he may bring about a more extended use of a method which possesses many advantages over general anesthesia in such a large part of the surgeon's work.

THE NORMAL CHILD. Its Care and Feeding. By Alan Brown, M.B., Physician in Chief to the Hospital for Sick Children, Toronto. Cloth. Price, $1.25. Pp. 254, with 11 illustrations. New York: The Century Company, 1923.

The list of books to advise mothers in the care of their children continues to increase rapidly; indeed, there has come to be such a similarity in standards that one wonders when the production of such volumes will end. In the preparation of the present book, Dr. Brown has availed himself of many previously published books of this character: for instance, he includes much material taken from government pamphlets; the entire chapter on growth of infant and child is taken from the book by Crozer-Griffith, and other sections are taken from books by Read, Bancroft, Smith and Pattie. The present volume would therefore appear to be an attempt to arrive at a standard outline. This it does in a fairly comprehensive way. It is unfortunate, however, that the author should say in the introductory chapter that the growing infant requires more attention than can be given by one person, and that mothers must have helpers. The mother with trained helpers is not so dependent on book advice as she who has none.

Miscellany

HOW THE DOCTOR LOOKS TO THE LAYMAN

WILLIAM BYRON FORBUSH, PH.D.
NEW YORK

Whenever the average American thinks about a doctor he counts him among the things he cannot afford. The wholesome citizen discounts sickness, and is certain that any malady that attacks himself must be a minor ailment. "I haven't time to be sick, and I cannot afford a doctor" are the two thoughts that rush to his mind whenever he feels a pain or suspects a fever. Diagnosing his case as worth about half a dollar to cure, he goes to the drug store, and says, "Doc, what you got that's good for a touch of malaria?" instead of calling the family physician. The average man does not think the doctor is too avaricious. He does not sympathize with the current bit of humor to the effect that surgeons administer ether so as to get a chance to examine their patients' pocket-books. It is were his wife, or child, he would be giving hurry-calls by telephone; but since it is himself, he carries home a bottle of bitters and warms up his stomach and forgets it.

Most of us are afraid of doctors. Four things the layman dreads are: appendicitis, cancer, all sorts of surgery, and being under an anesthetic. We regard these with equal seriousness. If I had a pain below the belt on either side I should be certain it was appendicitis, and if above the belt, I would suspect cancer. My mother died, unnecessarily, because she was "afraid of the knife," and I should be likely to imitate her. I suppose I must be shy of anesthesia because I fear that I may talk in my sleep. I wouldn't object to being unconscious if there weren't always so many people around.

The physician does not realize the ignorance of the average layman on medical matters. Although he may be interested in other sciences, even the intelligent reader seldom reads anything medical. The illustrations in physiologies and manuals of surgery are too intimate and unappetizing. Most homes contain no books on disease except "Holt" and a "patent medicine" almanac. As the result, we cherish certain superstitions, fixed ideas, and prejudices, that are medieval.

I was a pastor for nearly a quarter of a century. I made more calls than most physicians; I knew intimately thousands of families of the middle class, and since many of my visits were necessarily of a perfunctory character, I used to amuse and instruct myself by listening to the medical theories of the average American mother. I found that the home remedies were cherished, because they seem to be Nature's gifts. Hen oil, goose grease, pussy willow, garden herbs, and what was supposed to "draw," externally like mustard, or internally like yeast, were highly esteemed. I noticed that advertised remedies that seemed natural and simple were especially trusted: certain medicated muds, some to be rubbed on and others to be bathed in, Father John's medicine, because the reverend quack certainly would never deceive, and Mrs. Winslow's syrup, because she must have had the heart of a mother. I was myself brought up on two remedies, rhubarb and jamaica ginger, for the two opposites.

The common people like remedies that are active and tangible. When they take a laxative, they want to feel it work. They have more confidence in a tonic if it is bitter. They trusted "Oxydonor," because they could see it and take hold of it—some even said it was "heating," although I believe the nickel cylinder w[illegible]ed w[illegible]ld charcoa[illegible]
They favor osteopathy and [illegible] ti[illegible], when [illegible] strong man plays knuckle-[illegible] it see[illegible] as if something must be [illegible] st[illegible] attracts, for a similar re[illegible]

Average people are mystics as to disease. The physician too often forgets that the ancient medicine-man, of whom he is the lineal descendant, was also a priest. He is too matter-of-fact in his diagnosis and too dependent on mere materia medica for his cures. In our hectic America, a physical malady, at least among busy adults, is often the only occasion when the patient has time to yield to his deeper mental and spiritual illnesses. Clairvoyance had its turn because it claimed to lay hold on the immaterial. Christian scientists, the Lydia Pinkhams of the soul, have capitalized the fact that most people who are ill need a mother, a chance to relax, and the upward look. The reason so many people try it but do not join it is that as soon as it ceases to be interesting it becomes slightly amusing.

When we average people do go to a physician, usually we trust him implicitly, partly because we do not send for him until we are desperate, partly because we are certain that our own ailments are significant, and are bound to become a part of medical history; usually because he deserves by his trainin, his ability and his character all the confidence we place in him. As I trailed around after many physicians in my pastoral course, I knew that they and not I were the family counselors, the father confessors, and sometimes the spiritual advisers, of my people. They were the only professional men who always honored the truth. I found them dealing wisely with the follies and sins and hypochondrias of their patients. I was called only after they had left the cradle of the new-born baby, the couch of the chronic sufferer, the bedside of the dying.

Still I think that the modern physician ought to realize more deeply and minister more wisely to the ignorance, rather than to the sickness of the average person.

His greatest duty today is to educate us. I rejoice as I have not for many a day in the appearance of *Hygeia*. Nothing is more needed. There is a pseudo-scientific periodical, devoted to "drugless healing" and alluring sex-stories, that has three times the circulation of the leading medical journal in America. There are still misleading popular handbooks whose advice as to medical care is antiquated and perilous, but which are distributed by thousands. Into almost every community come lecturers every year who proclaim the most foolish ideas about the cure of disease and the care of the health.

I believe that the intelligent layman is ready for a national campaign of health education. He would be interested in the history of medicine, for nothing is more convincing as a defense against the quick, easy, short-cut theories of the outlaw schools than an account of the patience, the perils, the infinite cost with which what we know of asepsis, immunization and the few specifics was won. He would be thrilled by the heroology of medicine. He would be interested to learn the difference between a lesion and a lotion, and to be informed that vomica is not necessarily a vomiter. He needs more comprehensive sex education and an austere course of instruction as to the supposed necessity of self-expression through immorality. He would welcome community courses in hygiene, real quarantine, and the after-cure of the sick.

With such a popularizing of medicine through the friendly cooperation of local medical societies, we shall learn to call the doctor more often when we are well, so that we shall less often be sick. We shall engage him to teach us the regimen of living, and how to prolong life joyously instead of to eke it out. We shall then understand the peril of substituting the soda fountain clerk for the physician, in dealing with human lives. And we shall learn the difference between St. Luke the good physician and St. Vitus the backbone manipulator.

115 Broadway.

REPORT OF THE CHILDREN'S BUREAU

The first official report of activities under the Sheppard-Towner maternity and infancy act has been made public. Forty states are now cooperating with the federal government, for which Congress is permitted to appropriate $1,240,000 annually. The only states that have not accepted the provisions of this law are Vermont; Massachusetts; Rhode Island; Maine, where the legislature passed an acceptance act which the governor vetoed; Louisiana and Illinois, where the act received a majority in the senate but failed to pass the house; Kansas, where the act passed the senate, but did not come to a vote in the house; and Connecticut, where the last legislature instructed the health department not to accept the funds available under the act.

The national administration of the maternity and infancy act is lodged with the Children's Bureau, of which Miss Grace Abbott is chief. The report recommends the extension of the act to Alaska, Hawaii, Porto Rico and the Philippine Islands.

The Children's Bureau cooperated with the Community Health Service of Boston during the year in the demonstration of a habit-clinic for preschool children. An analysis of the results will be published later. A survey of nutrition work being done for children of preschool age in nine Eastern and Midwestern cities, and three rural communities was made, and a report is being prepared. A study of the growth of young children with special reference to rickets, the influence of children's diets, of the diets of nursing mothers, and of housing and sunlight, has been made in the District of Columbia in cooperation with the Child Welfare Society of the district. A study to determine methods to prevent rickets to be undertaken in cooperation with the Yale University Medical School at New Haven, Conn., is under consideration. Rural child labor and its relation to attendance at school has been investigated by the bureau in Colorado, Connecticut, Illinois, Kentucky, Maryland, Massachusetts, Michigan, New Jersey, North Dakota, South Carolina, Texas and Virginia. Detailed information concerning 11,000 rural child laborers has thus been obtained. Surveys of children in street trades in Wilkes-Barre, Pa., Columbus, Ohio, Atlanta, Ga., and Omaha have also been made. The Children's Bureau distributed 821,735 bureau publications in the last year, and received 98,533 letters, mostly from parents seeking information on some phase of child care.

A SACRIFICE TO INCOMPETENCE

The liability of a cultist for the consequences of his neglect, ignorance or unskilfulness was recently established by the supreme court of the state of Washington. Carroll, a "limited sanipractor," licensed to treat the sick by hydrotherapy, was called to attend the 8 year old son of the plaintiff, Mrs. Wilcox. The mother told the defendant when she summoned him that she feared her son had appendicitis. He assured her that that could not be the case, because the appendix did not form until a child was at least 10 years of age. The patient was suffering, he said, from either spinal meningitis or from infantile paralysis, and if a regular physician were called in, he would inject serum into the spine of the child, making him a cripple for life. The patient was carried to the defendant's office daily, from Dec. 30, 1921, until Jan. 6, 1922. Then the mother became alarmed and summoned the sanipractor to her home. He responded and wrapped the child in a wet sheet, but the patient becoming rapidly worse, the mother telephoned to the sanipractor. Then he admitted that there was somehing about the case he did not understand, and advised that a regular physician be called, requesting, however, that the physician be not informed that the sanipractor defendant had been in attendance. The physician found the patient suffering from acute appendicitis. An immediate operation was done, releasing more than a pint of pus and disclosing the appendix ruptured and gangrenous. The child died the following morning. The court found that the mother, having summoned Carroll knowing that he was an adherent to a school of healing that would not operate, could not complain because an operation was not performed. But, judged even by the tenets of the school of limited sanipractors, to which the defendant belonged, he was found to have failed in his duty toward the patient, and a judgment of $2,500 rendered against him in the lower court was allowed to stand.

Medicolegal

Admissibility of Evidence of Insanity of Relatives

(State v. Fenik (R. I.), 121 Atl. R. 218)

The Supreme Court of Rhode Island says that in this homicide case, in which the defense was insanity, the trial justice ruled that testimony of insanity of either the father or the mother would be allowed, but as to relatives beyond that it was too remote. Counsel for the defense stated that he desired to offer proof of insanity of the defendant's grandfather. That was not allowed, and the offer was then made of proof of insanity in the family of the defendant on both sides, which also was ruled out, as was likewise an offer of proof of insanity of a sister of the defendant's mother. The rulings rejecting the testimony mentioned were based on the ground that it was too remote. But the exclusion of this testimony was an error. From the evidence already in the case at the time, it was apparent that there was some basis for the contention that the defendant was suffering from mental disease or insanity, not merely of a temporary and transient nature, but which might be found to be hereditary. Proof of the possibility of such an inheritance from the parents would be strengthened by proof of insanity in one or both of the grandparents. Such evidence is admissible, both on principle and on authority. To exclude testimony of insanity in the direct lineal line of the ancestors of the accused in the present case might result in depriving both the jury and the medical witnesses of valuable evidence, and might result in grave injustice to the accused. With regard to the admissibility of evidence of insanity in collateral kinsmen, a more difficult question is presented, and within reasonable limits much must be left to the reasonable discretion of the trial justice, in view of the circumstances of each particular case. In the case at bar, this court thinks that the proof of insanity of the defendant's aunt was improperly excluded; and the exceptions on this point are sustained.

Automobilist's Promise and Liability to Physician

(Douglas v. Brandt (Conn.), 121 Atl. R. 179)

The Supreme Court of Errors of Connecticut finds no error in a judgment rendered in favor of the plaintiff physician for services in the treatment of a child that was seriously injured by the defendant in the operation of his automobile. The court says that the plaintiff maintained that he had proved that when the child was brought to his office by the defendant and the latter was asked who would be financially responsible for the treatment, the defendant answered: "I am responsible, Doctor, I will pay all bills"; that when the child was then taken to a hospital the defendant told the matron, "I will pay all bills," and on two subsequent occasions said to the plaintiff that he expected to pay all the bills. On the other hand, the defendant offered evidence to prove that he did not promise to pay or be responsible for the services rendered either at the time the child was in the plaintiff's office or at any subsequent time.

The defendant presented four questions on his appeal. The first one was: Were the circumstances such that a contract on the part of the defendant could be inferred to pay the plaintiff for the services for the value of which this action was begun? The finding recited as the foundation of this action an express promise on the part of the defendant to pay for all services required in the treatment of the injured child, coupled with his explicit assertion of responsibility for the services so rendered. That was an original promise made orally, on the faith of which the plaintiff performed services. If the contract was not barred by the statute of frauds requiring certain contracts to be in writing, it had all the elements necessary to a legal contract.

Was there a consideration for the contract? The answer to that question was that the plaintiff in reliance on the defendant's promise performed these services, which he was not legally bound to do, and this constituted in law a valid consideration.

Was the oral contract within the statute of frauds? The defendant contended that, generally speaking, an oral undertaking by a person not previously liable for the purpose of securing the debt or performing the same duty for which the person for whom the undertaking is made remains liable, is within the statute and must be in writing. But the court holds that the answer to this third question must be, "No," since the undertaking of the defendant was an original promise, and not a collateral one. The principle stated by him was true, but the situation as found by the trial court made that principle wholly inapplicable, and the court's refusal to instruct the jury on the statute of frauds was properly based on the fact that the evidence did not authorize a finding of a collateral undertaking, and it was as to such only that the statute of fraud applied. The issue submitted to the jury was one of fact as to whether there was an original contract on the part of the defendant, as the plaintiff claimed, or that there was no such promise, as the defendant contended, and that was the only issue properly before the jury.

The defendant's fourth question was, Could an action of this character be brought under what are termed the common counts? The bill of particulars in effect struck out all the paragraphs of the common counts not applicable, and left the case as one for work performed and professional services rendered under an express employment to pay a compensation not determined of a named value, which the defendant had never paid. For such a case the common counts is an appropriate remedy.

Compensation from Employer Bars Recovery from Physician for Malpractice

(Pitkin v. Chapman (N. Y.), 200 N. Y. Supp. 235)

The Supreme Court of New York, Special Term, Warren County, in granting a motion made by the defendant, a physician, for a judgment on the pleadings, says that he was charged with malpractice in treating injuries sustained by the plaintiff in a fall from a piazza roof. The defendant's answer alleged that the plaintiff had been awarded $1,374.26, under the workmen's compensation law, for all his injuries, based on his condition at the time of the award, which sum he received before the commencement of this action. It also appeared that the alleged malpractice occurred before the final award.

There can be but one recovery for the same wrong. Satisfaction by one joint tort-feasor or wrongdoer has always been considered a bar to an action against another. Though an original injury is added to by a second fracture, resulting while the injured employee is acting in a prudent manner, the insurer, liable under the workmen's compensation law for the first injury, is also liable for the additional one. If a person injured employs in good faith a physician reputed competent, the original wrongdoer cannot escape entire liability, though the injuries are aggravated—or even death results—because of mistakes in medical treatment. A wrongdoer cannot take advantage of the mistakes of a physician or surgeon in treating the injury. The mistake of the physician could not have occurred but for the original wrong. Therefore the physician is not an intervening person responsible to the injured, if the injured seeks to hold only the original wrongdoer. This has been held so often in actions at common law that in such cases it is not an open question. The workmen's compensation law of New York State does not alter this just and salutary principle. There can still be but one compensation for one wrong. That act provided a sure and certain compensation for a workman injured in the course of his employment. It did not provide or attempt to provide, in contravention of the common law, that there could be two recoveries for what the common law had theretofore held to be one wrong—one injury.

The compensation law requires the injured employee to elect whether he will take compensation there[illegible] pr ceed under his common-law rights. Having once elected, he is bound thereby. The remedy is exclusive. Since there can be but one recovery for an injury, the statute provides that, when another is partly or wholly responsible therefor, the one paying shall be subrogated to the remedy of the employee against such other. And this must be true, whether the wrongs of two tort-feasors were simultaneous, or whether one wrong, as was alleged in this case, was subsequently committed. Here the employer responded in full for the injury, including the malpractice alleged. If any action lay against the physician, it was one in favor of the employer, who was subrogated to such right.

"Unusual Cases" for Medical and Hospital Services

(Rys' Case; White's Case; Willis' Case (Mass.), 139 N. E. R. 505)

The Supreme Judicial Court of Massachusetts says that two of these cases were for medical services, and the third was for hospital treatment furnished to an injured employee. The industrial accident board found that each of them was an "unusual case," within the meaning of the workmen's compensation act of Massachusetts, and that the insurer was liable for a longer period than the first two weeks of incapacity. The statute provides that during the first two weeks after the injury, and in unusual cases, in the discretion of the department, for a longer period, the insurer shall furnish adequate and reasonable medical and hospital services, and medicines if needed.

The difficulty of defining in advance what constitutes an unusual as distinguished from the usual or ordinary case, is inherent in the word itself, when used in connection with a subject so comprehensive and varied as human injuries. The unusualness has reference primarily to the nature of the injury itself. Among the "unusual" cases would ordinarily be included, for example, those requiring major operations, spinal injuries calling for expensive special apparatus, and serious injuries to the eye or brain demanding the services of specialists. It is equally clear that the statute is not applicable to the common minor injury, calling for ordinary medical treatment, even though treatment for more than two weeks is necessary. Cases close to the line on either side must be determined by their particular facts.

Rys received treatment on the first two days at a relief station, after which he was treated for a little more than four months at a physician's office, except on two days when one finger and a portion of another were amputated. The industrial accident board made a finding that the injury in this case was a very serious one, complicated by unusual conditions, including degeneration of the skin, laceration of the tissues, necrosis of the bone and tissues, and hemorrhage; that the injury necessitated the amputation of the first and two thirds of the second phalange of the middle finger and the first, second, and two thirds of the phalange of the fourth finger of the right hand; and that the employee as a result of the injury had lost the ability to grip with his right hand; had no movement in the first phalange of the little finger, and no movement in the first and second phalanges of the index finger. The insurer contended that this was not an "unusual case" under the statute, and that the board was not warranted in holding it liable for the medical services rendered more than two weeks after the injury; but the court holds that the nature of the injury, complicated as it was by the serious condition of the skin, tissues, and bone, was such that this court cannot say the finding of the board was unwarranted; in consequence of which the court affirms a decree for compensation for the services of the physician who treated the case.

In White's case the palm of his left hand was cut and lacerated, and dirt was ground into it; but he was able to return to work after treatment for five weeks by a physician. The wound was infected, and blood poisoning set in; but the treatment after the first two weeks was that of dressing the wound, which was sometimes done by the physician's assistant. The case did not require the services of a specialist. There were thirty-one visits—all but two at the physician's office. The court is of the opinion that the board was not warranted in finding that this was an "unusual case," within the meaning of the statute; wherefore the court holds that the decree in this case must be reversed, and one entered ordering the insurer to pay the medical expenses for the first two weeks after the injury.

Willis broke his right leg, and nine months thereafter, while still incapacitated and receiving compensation, "on account of his knee being weak, he fell down and fractured the old fracture." The board ruled that this was an "unusual case," and that the insurer should pay the hospital bill necessitated by the second fracture. But because the record failed to disclose how the accident happened, or to show any causal connection between the original injury and the second fracture, the court reverses the decree for the payment of the hospital bill, and recommits the case to the board for a further hearing on the question of the seriousness of the injury and its relation to the original accident. The mere recurrence of the fracture was not enough to show that this arose out of Willis' employment, as did the first fracture.

Injury to Patient in Pay Wing of City Hospital

(Wallwork v. City of Nashville et al. (Tenn.), 251 S. W. R. 775)

The Supreme Court of Tennessee, in affirming a judgment in favor of the defendants, says that they were the city, the hospital commissioners of the city, and two nurses in charge of the ward in which the plaintiff was a patient when, as it was alleged, she was negligently burned with a hot water bottle after she had undergone an appendectomy. It was conceded that a hospital created and existing for purely governmental purposes, and under the exclusive ownership and control of the city, is not liable for injuries to a patient caused by the negligence or misconduct of its employees. But counsel for the plaintiff contended that, since this hospital maintained a wing for those who were enabled to pay in part, the city thereby became liable for any injuries resulting to a patient in that wing, their insistence being that the fact that the plaintiff paid for a part of the services rendered to her took the case out of the general rule. This question has not been heretofore passed on by this court in any reported case. It may be said, however, that by the great weight of authority it is now held, on grounds of public policy, that a private charitable hospital which has exercised ordinary care in the selection of its employees is not liable for injuries resulting from their negligence. It is also held that the rule applies to a pay patient as well as to one who does not pay. The principle of law as to private charitable hospitals on reason would apply to a municipal charitable hospital, for courts would not extend a greater latitude of exemption to a privately conducted charity than to a public one; for in the former the service rendered might be restricted to certain classes, while in the latter the service is extended to all citizens. There was no allegation or claim that the city or the commissioners did not exercise ordinary care in the selection of its employees, and, on both reason and authority, this court is of the opinion that no error was committed in sustaining a directed verdict in favor of the city and the hospital commissioners. Nor does this court think that a case was made against the nurses in this instance.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.
American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.
American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.
Association for Research in Nervous and Mental Diseases, New York. Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.
District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.
Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.
Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 389-516 (Oct.) 1923

Cystocele and High Rectocele. T. J. Watkins, Chicago.—p. 389.
*Relaton Between Placenta and Secretion of Milk. O. Frankl, Vienna.—p. 399.
*Follow-Up Results of 908 Cases of Uterine Cancer Treated by Radium. H. Bailey and W. P. Healy, New York.—p. 402.
Pathology of Vulvar Diseases. F. T. Taussig, St. Louis.—p. 407.
*Prevention of Fetal Asphyxia. R. A. Bartholomew, Atlanta, Ga.—p. 418.
*Calcium and Magnesium Content of Blood Serum During Pregnancy, Labor and Puerperium. E. D. Plass and L. J. Bogert, Detroit.—p. 427.
Outline of Postpartum Care. H. Thoms, New Haven, Conn.—p. 444.
*Feeding of Placental Extract to Mothers; Its Effect on Breast-Fed Infants. S. F. Abrams, St. Louis.—p. 450.
Painless Childbirth by Synergistic Methods. J. T. Gwathemey, E. P. Donovan, J. O'Reagan and L. R. Cowan. New York.—p. 456.
Germicides for Use on Skin. E. McDonald, Philadelphia.—p. 467.
Dystocia in an Eclamptic Due to Cystic Hygroma of Pectoral Region of Fetus. F. T. Iiams, Houston, Tex.—p. 475.
Tuberculous Ovarian Cysts. G. L. Moench, New York.—p. 478.

Relation Between Placenta and Secretion of Milk.—Frankl refers to experiments which prove that in animals known to have ample milk the effective grafting of placenta temporarily hinders milk secretion, evidently under the influence of an active hormone supplied by the living placenta.

Radium Therapy of Uterine Cancer.—Bailey and Healy believe that their results are encouraging and that they could not have been obtained without the use of massive doses of radium and without thoroughly radiating the parametrium.

Prevention of Fetal Asphyxia.—A fetal heart rate that becomes persistently slowed to not less than 100 during pains, but increases to normal rate between pains, Bartholomew says is a sufficient indication to follow the heart rate more frequently, discover the cause if possible, and make preparation for interference, if required. A fetal heart rate persistently below 100 both during and between pains, demands prompt delivery of the baby if this can be done without great risk to the mother. A rapid heart rate does not indicate either a threatened, or an advanced state of asphyxia.

Calcium and Magnesium Content of Blood Serum During Pregnancy.—Analyses made by Plass and Bogert on 105 normal pregnant women showed a definite and consistent tendency toward a lowering of serum calcium during pregnancy. This tendency was more marked toward the end of the period of gestation. The average values for serum calcium in normal pregnant women were distinctly lower than the average for normal nonpregnant women (917 mg. per cent.). The values for serum calcium obtained in cases of the toxemias of pregnancy are quite comparable to those found in normal women at the same period of gestation. There is no evidence that low serum calcium bears a causal relation to the convulsive manifestations of eclampsia. The serum magnesium in normal nonpregnant women was remarkably constant. The magnesium content of the serum showed a tendency to be lower toward the end of pregnancy, and especially at the time of labor. A few determinations of serum magnesium in cases of toxemia gave values within the upper limits of the normal range. Both the calcium and magnesium content of the serum return to normal shortly after delivery. The serum of lactating women showed no significant variations in calcium and magnesium content from that of normal nonpregnant women.

Effect of Placental Feeding on Milk Secretion.—Although placental medication does influence either milk secretion or the immediate growth of the infant, Abrams feels that neither a real galactogogue, nor the main stimulus of milk secretion has been discovered in dried placental tissue. His results in seventy-six cases have not been sufficiently clear. He believes that if the parental secretion really stimulates the secretion of milk, the feeding of large amounts should produce effects which could be seen grossly and without question in most cases, especially in those who already have a large amount and large breasts. By far the best stimulus to milk secretion is a large hungry baby and a cooperating mother.

American Journal of Ophthalmology, Chicago

6: 881-954 (Nov.) 1923

Extensive Unilateral Chorioretinal Atrophy with Recurring Deep Scleritis. B. W. Key, New York.—p. 881.
Bitemporal Contraction of Fields of Vision in Pregnancy. M. Carvill, Boston.—p. 885.
Tuberculosis of Eye: Its Diagnosis and Treatment by Tuberculin. W. E. Gamble, Chicago.—p. 892.
Plastic Operation for Palpebrofacial Deformity. L. Lehrfeld, Philadelphia.—p. 895.
Hemangioma Cavernosum of Orbit. H. L. Begle, Detroit.—p. 899.
Facoerisis. L. Mills, Los Angeles.—p. 901.
Cateract Extraction After Barraquer's Method of Phakoerisis. A. R. Ubaldo, Manila, P. I.—p. 906.
"V" Test for Astigmatism, and Astigmatic Chart in General. F. H. Verhoeff.—p. 910.
Muscle "Folder" for Strabismus. J. W. Calkins, Oakland, Calif.—p. 910.
Chronic Mild Iridocyclitis. E. E. Blaauw, Buffalo.—p. 915.

American Journal of Physiology, Baltimore

66: 215-444 (Oct. 1) 1923

*Protein and Vitamin A Content of English Walnut. H. L. Mignon, Berkeley, Calif.—p. 215.
Sources of Heat in Muscle Contraction. C. D. Snyder, Baltimore.—p. 232.
Average Epinephrin Output in Cats and Dogs. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 235.
*Function of Cerebral Ventricles. K. J. Austmann and H. K. Moorhouse, Winnipeg.—p. 267.
*Rôle of Anoxemia in Causation of Tetany During Hyperpnea. S. B. Grant, Boston.—p. 274.
Relations Between Lesions of Brain Stem, Water Elimination and Body Temperature. F. T. Rogers, Dallas, Texas.
Gill Movements in a Perennibranchiate Urodela (Necturus Maculatus). Relation to Central Nervous System. G. N. Stewart, Cleveland.—p. 288.
*Quantitative Determination of Trypsin and Lipase in Gastric Contents. C. W. Lueders and O. Bergeim, Philadelphia.—p. 297.
*Effect of Asphyxia on Suprarenal Output as Demonstrated by Variations in Temperature of Brain. G. W. Crile, A. F. Rowland and S. W. Wallace, Cleveland.—p. 304.
Physiology of Reproduction in Birds. O. Riddle, Cold Spring Harbor, N. Y.
*Mineral Metabolism of Lactating and Dry Goat. C. H. Hunt, A. R. Winter, J. A. Schultz and R. C. Miller, Wooster, Ohio.
*Effect of Diuresis on Excretion of Uric Acid. J. L. Morris and H. M. Rees, Cleveland.—p. 363.
*Production of Hypoglycemia in Experimental Derangements of Liver. M. Bodansky, Galveston, Texas.—p. 375.
*Studies in Peristaltic Fatigue. V. E. Henderson, Toronto.—p. 380.
Reflex Contractions of All-or-None Character in Spinal Cat. E. L. Porter and V. W. Hart, Cleveland.—p. 391.
Antigenic Effects of Semen. J. L. McCartney, Chicago.—p. 404.
Suprarenal Discharge in Dog. J. Searles, Columbus, Ohio.—p. 408.
Reaction of Small Intestine to Sodium Bicarbonate. C. E. King and J. G. Church, Nashville.—p. 414.
Motor Reaction of Muscularis Mucosæ to Some Drugs. C. E. King and J. G. Church, Nashville.—p. 428.
Effect of Insulin on Central Nervous System. Relation to Pituitary Body. J. M. D. Olmsted and H. D. Logan, Toronto.—p. 437.

Vitamin A Content of English Walnut.—The vitamin A content of the English walnut has been investigated by Mignon in a series of feeding experiments on rats. It was found that the whole walnut contains vitamin A in such small amounts that not enough can be consumed by rats in addition to the other necessary nutrients to furnish normal growth.

Function of Cerebral Ventricles.—According to Austmann and Moorhouse the normal ventricles in the dog are largely potential cavities, the walls being mostly in apposition, except in the case of the lateral ventricles in which they are usually separated by a layer of from 2 to 4 mm. of cerebrospinal fluid between the roof and floor of the main ventricles. Demonstrable dilatation of the ventricles occurs from twenty-eight to sixty hours after obstruction of the aqueduct of Sylvius. Demonstrable dilatation of the ventricles occurs half an hour after the intravenous injection of hypertonic salt solutions. The ventricles are capable of change in size as a result of change in the volume of the brain substance.

Anoxemia Causes Tetany.—It is shown by Grant that during the alkalosis and tetany of hyperpnea there is a greater oxygen consumption of the body, as d[illegible]ermined by [illegible] of the respiratory excha[illegible] han i[illegible]imilar hy[illegible] panied by alka[illegible] ta[illegible] oxyg[illegible] venous blood [illegible] with tetany then in hyperpnea alone in three or four experiments. Hyperpnea with alkalosis and tetany was accompanied by an increase in the oxygen saturation of the arterial blood. Inhalation of pure oxygen had no effect on the development of symptoms of tetany during hyperpnea, and hyperpnea with a mixture of equal parts of oxygen and air resulted in tetany in the same manner as though air alone had been used. It is concluded by Grant that anoxemia plays no part in the causation of tetany during hyperpnea, and that the lowering of the carbon dioxid tension of the blood under these conditions is not sufficient to cause tissue asphyxia.

Determination of Trypsin and Lipase in Gastric Contents.—Simple methods are described by Lueders and Bergeim for the determination of trypsin and lipase in gastric contents. These are capable of throwing considerable light on the phenomenon of pancreatic regurgitation, which is probably of greater importance than is generally realized.

Effect of Asphyxia on Epinephrin Output.—Crile and his associates found that asphyxia produces an increased output of epinephrin which is manifested by an increase in the temperature of the brain.

Mineral Metabolism of Dry and Lactating Goat.—The calcium and chlorin content of goat's milk is higher according to Hunt and his associates than that of cow's milk. In the early period of lactation there is a loss of calcium and phosphorus from the body of lactating goats irrespective of the nature of the feed. As the period advances these losses are decreased until a certain time, when the balances becomes positive. A goat in the early period of lactation gave the largest percentage of sodium in the milk and this decreased as the period advanced. A high fecal sodium was associated with low fecal potassium, and vice versa. In the case of dry goats, the magnesium seems to have been deflected from the milk to the urine, while the calcium and phosphorus were deflected to the feces. The sulphur, chlorin and nitrogen of the milk are deflected to the urine when the animal becomes dry.

Effect of Diuresis on Uric Acid Excretion.—Morris and Rees state that uric acid excretion is increased to a similar degree by chlorid and sulphate diuresis. There is no evidence that uric acid arises directly from increased kidney activity. The increased output is proportional to the volume of urine excreted. The variations in amount of uric acid excreted after isotonic and hypertonic salt injections indicate that its usual behavior is that of a nonthreshold substance.

Hypoglycemia in Liver Derangements.—It has been found by Bodansky that hypoglycemia occurs in severe chloroform poisoning as well as in hydraxine and phosphorus intoxications. This is especially marked in poorly nourished animals. The initial effect of severe liver damage produced by these agents is hyperglycemia. Subsequently, this effect disappears, and the blood sugar level falls to subnormal values. Death resulting from acute chloroform and phosphorus poisoning is not entirely due to functional damage of the liver as these substances are general protoplasmic poisons. On the other hand, in chronic conditions of liver injury or in conditions of acute chloroform and phosphorus intoxication in animals with damaged livers, hepatic insufficiency may be the primary cause of death. In such cases Bodansky has observed symptoms similar to those described by Mann and Magath in the case of completely hepatectomized dogs.

Peristaltic Fatigue.—Peristaltic failure is not due to a failure of the activity of the muscular coats alone. Evidence is presented by Henderson which suggests that it is due, in part at least, to fatigue of the nerve-net. Activity may be restored in most cases by barium chlorid or pilocarpin, and under certain conditions, possibly by strychnin.

American Journal of Roentgenology and Radium Therapy, New York

10: 767-852 (Oct.) 1923

Radium Treatment of Toxic Goiter with Metabolic Deduction. R. E. Loucks, Detroit.—p. 767.
Certain Biologic Principles of Radiation Therapy. S. Withers, Denver.—p. 776.
Action of Measured Radiation Doses on Carcinoma of Uterine Cervix. H. Schmitz, Chicago.—p. 781.
Results of Deep Roentgen-Ray Treatment of Gastro-Intestinal Malignancies. Detroit.—p. 793.
*Treatment of Primary Mediastinal Tumor of Lung by Roentgen Rays After Medical Resources were Exhausted. F. S. Eveleth, Concord, N. H.—p. 802.
Results with Modern Radiotherapy in Bladder Tumors. C. Goosmann, Cincinnati.—p. 804.
*Case of Tuberculosis of Symphysis Pubis. J. B. Jackson, Kalamazoo, Mich.—p. 806.
Roentgen-Ray Therapy of Chronic Prostatic Hypertrophy. J. T. Stevens, Montclair, N. J.—p. 810.
Roentgen-Ray Treatment of Thyroid. E. L. Jenkinson, Chicago.—p. 814.
Clinical Problems in Roentgen-Ray Therapy of Deep-Seated Malignancy. C. L. Martin and J. M. Martin, Dallas, Tex.—p. 818.
Biologic Reaction of Roentgen-Rays: Influence of Roentgen-Ray Treatment on Complement Content of Blood of Cancer Patients. C. F. Cori, Buffalo.—p. 830.
Tumors of Pituitary. J. T. McKinney, Roanoke, Va.—p. 835.
Importance of Roentgen-Ray Examination in Determination of Proper Method of Treatment of Pulmonary Abscess. W. H. Stewart, New York.—p. 841.
Relatively Large Foreign Body (Glass) in Orbit. P. Brown.—p. 842.
Fibrinous Bronchitis. Three Cases. F. H. Rodenbaugh, San Francisco.—p. 843.

Roentgenotherapy for Mediastinal Tumor.—Eveleth does not say what sort of tumor this was, except, that it was not caused by tuberculosis or syphilis, nor was it an aneurysm. The patient was 52 years of age. His first symptom was cough, beginning twelve years before. When Eveleth saw him, he had a markedly cachectic appearance with a history of progressive increasing weakness and loss of weight. He was very nervous from constant coughing, shortness of breath and pressure effects. Roentgen-ray treatments were begun in May, 1920, and continued for six months. Lost weight was regained, the cough ceased to annoy and in September, 1923, there was no evidence of recurrence.

Tuberculosis of Symphysis Pubis.—Jackson's patient was only 11 years of age. She had never been robust. She had had measles, chickenpox and a severe attack of whooping cough. Two years previously she had had influenza followed by pneumonia. About a year later she had a severe colitis which lasted about ten days. There was no family history of tuberculosis. The first symptom noticed was something unusual about the gait. There was difficulty about fast walking or running. Soon after this a swelling was noticed on the anterior surface of the right thigh immediately below Poupart's ligament. Roentgen-ray examination disclosed a destructive lesion of the pubic bones at the symphysis pubis. The cold abscess was aspirated. The general treatment consisted of nutrition, fresh air and sunshine. The patient recovered.

American Review of Tuberculosis, Baltimore

8: 93-194 (Oct.) 1923

Infection and Immunity in Tuberculosis. G. B. Webb, Colorado Springs.—p. 93.
*Tuberculosis Mortality in Relation to Altitude, Humidity and Density of Population. C. F. Gardiner, G. B. Webb and C. T. Ryder, Colorado Springs.—p. 112.
Alterations in Endothelial Permeability and Their Relation to Tuberculous Focus. W. F. Petersen and S. A. Levinson, Chicago.—p. 122.
*Hematologic Studies on Experimental Tuberculosis of Guinea-Pig. L. Bender and L. M. DeWitt, Chicago.—p. 138.
*Leukocyte Picture After Diagnostic Doses of Old Tuberculin. R. McBrayer, Shelby, N. C.—p. 163.
*Isolation and Cultivation of Tubercle Bacilli Protected from Light. J. Simmons, Denver.—p. 165.
*Thoracic Restriction a Most Important Adjuvant in Rest Treatment of Pulmonary Tuberculosis. S. Golden, Anglum, Mo.—p. 170.
Teaching of Tuberculosis in Medical Schools. W. C. White, Pittsburgh.—p. 178.
Teaching Normal Chest Findings to Medical Students. J. A. Myers, Minneapolis.—p. 184.
Tuberculosis Library and Its Classification. A. M. Macrum, Pittsburgh.—p. 189.

Tuberculosis Mortality in Relation to Altitude.—The high inland plateau region of the United States has a remarkably low death rate from tuberculosis, both pulmonary and nonpulmonary, as compared with lower and damper regions; and this appears to be due not only to favorable hygienic, economic and social conditions, but also, in considerable part, to climatic factors, notably altitude and dryness.

Blood Changes in Experimental Tuberculosis.—An acute infection with tuberculosis, Bender and DeWitt found, produces a characteristic blood picture in guinea-pigs in which there is a rapid loss in erythrocytes with a relatively greater decrease in hemoglobin, a terminal leukocytosis or leukopenia, a progressive decrease in lymphocytes, a marked preterminal increase in endothelial cells and an absence of eosinophils. Chronic tuberculosis produces a blood picture, quite different from that of acute tuberculosis. It is characterized by a marked fluctuation in all elements, a relatively low hemoglobulin content of the erythrocytes, which is not progressive but shows the normal seasonal variations, and absence of any reaction in the lymphocytes, and an eosinophilia which cannot, however, be distinguished from that associated with Kurloff bodies. The coagulability of the blood in chronic tuberculosis shows slight changes from the normal, but in acute tuberculosis it is markedly retarded. The Arneth counts show a decrease in nuclear parts per hundred cells in tuberculosis, which, on the average, is greater in acute than in chronic cases, but there are individual exceptions.

Leukocyte Picture After Use of Tuberculin.—In cases positively reacting to diagnostic doses of old tuberculin, McBrayer says, there is, as a rule, an appreciable drop in the leukocyte count. Otherwise, there is no certain or consistent leukocytic change. This laboratory procedure is therefore of no appreciable value to the clinician in the interpretation of his reactions.

Cultivation of Tubercle Bacilli Protected from Light.—It seems desirable to Simmons, in experimental work with tubercle bacilli, to eliminate the possibility of accidental attenuation of the bacilli by exposure to light. Tubercle bacilli may be protected from injurious light rays if grown in red coated tubes, a precaution which is especially to be recommended in higher altitudes. By the use of red glassware for the collection of infected materials, during the treatment of the materials and the cultivation of the bacilli, strains of tubercle bacilli may be isolated and preserved without suffering any appreciable change due to the photochemical action of light.

Thoracic Restriction in Tuberculosis.—Bed-rest, coupled with thoracic restriction, or pulmonary rest, brought about by external pressure through whatever means, Golden asserts, gives the best results with the least risk or discomfort to the patient, and is unsurpassed in the treatment of pulmonary tuberculosis. External thoracic compression immobilizes lung extensibility, and thereby hastens healing. By this method toxemia is diminished. By the proper application of external thoracic compression pulmonary hemorrhage may be checked. Pain, especially of pulmonary or pleural origin, is instantly relieved by the proper use of the method. The ease of application and freedom from risks and complication make the method especially serviceable and most profitable, both to physician and patient.

Archives of Dermatology and Syphilology, Chicago

8: *597-748 (Nov.) 1923*

Education of Specialist. H. Morrow, San Francisco.—p. 597.
*Dermatoscopy. J. C. Michael, Houston, Tex.—p. 603.
Fermentation Reactions of Ringworm Fungi. J. G. Hopkins and K. Iwamoto, New York.—p. 619.
Xanthoma Diabeticorum Treated with Insulin. M. F. Engman and R. S. Weiss, St. Louis.—p. 625.
Treatment of Pemphigus. R. H. Davis and W. D. Davis, St. Louis.—p. 627.
*Relation Between Serum Cholesterin and Wassermann Reaction. R. S. Weiss and A. L. Essermann, St. Louis.—p. 639.
Lymphangiectatic Hypertrophy of Vulva Occurring in Nevus Unius Lateris. N. Tobias, St. Louis.—p. 647.
*Monilethrix. Five Cases of Familial and Hereditary Type. N. Tobias, St. Louis.—p. 655.
Hyperglycemia as Etiologic Factor in Certain Dermatoses. I. L. McGlasson, San Antonio, Tex.—p. 665.
Keratoderma Punctatum. S. E. Sweitzer, Minneapolis.—p. 687.
Xanthoma Tuberosum. Report of Case. B. B. Beeson and P. G. Albrecht, Chicago.—p. 695.

Dermatoscopy.—Michael's studies in dermatoscopy were made on the capillaries in various skin diseases. His findings show that changes in the superficial skin capillaries occur in four ways: (1) dilatation without other change; (2) dilatation with special changes in the individual capillary form (aneurysmal dilatations, glomerular expansions); (3) new blood vessels formation (twiglike ramifications, intercommunicating vessels), and (4) large vascular trunks (telangiectasis).

Relation Between Serum Cholesterin and Wassermann Reaction.—A study of serial Wassermann tests with parallel cholesterin determinations on the blood serum is presented by Weiss and Essermann. In some cases, the cholesterin values roughly paralleled the degree of fixation in the Wassermann test, while in others no such correlation could be found The degree of fixation in the Wassermann test seems to be independent of the cholesterin content of the serum.

Monilethrix.—Five cases of monilethrix occurring in three generations of a family are reported by Tobias. The pathologic findings were hyperkeratosis of the follicles with intrafollicular, horny plugs, tortuous follicles and attenuated sebaceous glands. The theory that the disease is an ectodermal defect of the skin is suggested.

Boston Medical and Surgical Journal

189: 671-732 (Nov. 8) 1923

*Cause of Recurrence of Symptoms After Removal of Appendix. C. H. Lawrence, Boston.—p. 671.
Problem of Chronic Appendix. E. L. Young, Boston.—p. 673.
Recurrent Symptoms of Appendicitis. L. T. Swaim, Boston.—p. 676.

Cause of Recurrence of Symptoms After Appendectomy.—This paper is based on ninety-seven cases showing the symptoms of intermittent pain in the right lower quadrant, vomiting, nausea and disturbance of the function of the bowels over a period of a year or more. Of these, fifty patients have had either operation or roentgen-ray gastro-intestinal study, so that the intra-abdominal condition is definitely known in each of them. Of these fifty patients, twenty-one, or 42 per cent., have been operated on because of the diagnosis of chronic appendicitis. Of the twenty-one operated on, none was completely relieved by the operation. Seven of those who had the appendix removed have obtained a partial or temporary relief. Lawrence is convinced that the so-called "chronic appendix" is but a small factor in the production of the symptoms from which the patient usually seeks relief, and that appendectomy alone is but inadequate treatment of the condition. It is necessary to improve the function of the gastro-intestinal tract, so that absorption of nourishment and elimination of waste may be more efficiently performed. The first step is the regulation of the bowels. Roughage in the diet should be kept at a minimum. General exercise is of value in building up the tone, not only of the skeletal but also of the intestinal muscle. Support by brace or corset may be necessary in certain cases, but should be avoided if possible.

189: 733-796 (Nov. 15) 1923

Trustee's 'Remarks on Opening of Thorndike Memorial Laboratory. H. S. Brown, Boston.—p. 733.
Thorndike Memorial. J. M. Curley, Boston.—p. 734.
Problems Underlying Public Hospital Administration. W. J. Mayo, Rochester, Minn.—p. 736.
Anatomic and Roentgen-Ray Study of Optic Canal in Cases of Optic Nerve Involvement. L. E. White, Boston.—p. 741.
Medical Education Fifty Years Ago. E. H. Bradford, Boston.—p. 748.
**Requirements for an Ideal Cardiac Clinic and System of Nomenclature.* Report of Committee on Cardiac Clinics.—p. 762.

Ideal Cardiac Clinic.—This report is divided into seven parts: medical organization; social service; space, equipment and facilities; record; admission and distribution of patients, standards for physical examination, and standards for treatment. Each division is further subdivided. A definite nomenclature and basis for classification is also given with the end in view of establishing uniformity of procedure in all cardiac clinics so as to facilitate study of these cases.

Illinois Medical Journal, Oak Park

44: 305-380 (Nov.) 1923

Doctor and Press Face to Face. R. J. Finnegan, Chicago.—p. 324.
Recent Developments in Radium Therapy. F. E. Simpson, Chicago.—p. 327.
Indications and Technic for Major Chest Surgery. D. W. Deal, G. T. Palmer and H. H. Cole, Springfield.—p. 329.
Congenital Pyloric Stenosis. Surgical Treatment. M. Thorek, Chicago.—p. 334.
Carcinoma of Larynx. F. J. Novak, Chicago.—p. 338.
Surgical Treatment of Chronic Intestinal Stasis. J. G. Young, —p. 341.
Cults. A Suggestion. E. H. Ochsner, Chicago.—p.
Cholecystitis and Cholelithiasis During Pregnancy J. Isaacs, Chicago.—p. 347.
Present Status of Deep Roen cago.—p. 350.

Intratracheal Injection of Oils. J. E. Lebensohn, Chicago.—p. 354.
New Technic for Removal of Tonsils with Complete and Definite Hemostasis Following Principles of General Surgery. O. M. Steffenson, Chicago.—p. 358.
Intravenous Method for Early Diagnosis of Tuberculosis in Guinea-Pig. S. A. Levinson, Chicago.—p. 360.
Problem of Nervous Patient. M. Solomon, Chicago.—p. 362.
Value of Standards of Infectivity of Venereal Diseases. F. M. Phifer and N. K. Forster, Chicago.—p. 366.
Surgical Treatment of Lung Abscess. B. D. Baird, Galesburg.—p. 370.
Mastoid Operations Under Local Anesthesia. G. W. Boot, Chicago.—p. 373.

Journal of Comparative Psychology, Baltimore

3: 327-411 (Oct.) 1923

Elimination of Short and Long Blind Alleys. A. E. White and E. C. Tolman, San Francisco.—p. 327.
Influence of Mental Activities on Vascular Processes. M. E. Day, Baltimore.—p. 333.
Simple and Accurate Method of Recording Speech. K. Dunlap, Baltimore.—p. 379.
Central Inhibition in Albino Rat. L. T. Spencer, New Haven, Conn. —p. 389.

Journal of Experimental Medicine, Baltimore

38: 327-485 (Oct.) 1923

Botulism. Manner in Which Toxin of Clostridium Botulinum Acts on the Body. II. Effect on Voluntary Nervous System. E. C. Dickson and E. Shevky, San Francisco.—p. 327.
Studies Based on Malignant Tumor of Rabbit: V. Metastases. L. Pearce and W. H. Brown, New York.—p. 347.
*Id. V. Metastases. Part 2. Description of Lesions. L. Pearce and W. H. Brown, New York.—p. 367.
Id. V. Metastases. Part 3. Factors That Influence Occurrence and Distribution. W. H. Brown and L. Pearce, New York.—p. 385.
*Method for Physiologic Study of Tissues in Vitro. A. Carrel, New York.—p. 407.
Antagonistic Growth Principles of Serum and Their Relation to Old Age. A. Carrel and A. H. Ebeling, New York.—p. 419.
*Studies on Nasopharyngeal Secretions from Patients with Common Colds. P. K. Olitsky and J. E. McCartney, New York.—p. 427.
*Method for Determination of Specific Gravity of Red Blood Cells. P. Reznikoff, Boston.—p. 441.
*Lung Volume in Heart Disease. C. A. L. Binger, New York.—p. 445.
*Chemical Changes in Blood of Dog After Obstruction of Esophagus and Cardiac End of Stomach. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 477.

Malignant Tumor Metastases.—As part of a general investigation of a malignant tumor of the rabbit, the phenomena of metastasis were studied by Pearce and Brown in a group of 191 animals. It was found that while the picture presented by different animals varied greatly, there was a remarkable degree of uniformity in the character of the lesions in a given organ or tissue and in the circumstances under which metastases occurred in a given location. It was thus possible to establish a relationship between the distribution of metastases and the function of animal resistance. The conclusion was reached that the peculiarities of metastatic involvement displayed by individual animals were not entirely attributable to chance distribution of tumor cells but that they were founded very largely on constitutional differences and that the picture presented in any given instance represented an expression of the interaction between tumor and host, the character and force of which were indicated by the nature and distribution of the lesions or by the organs and tissues affected.

Study of Tissues in Vitro.—A method has been developed by Carrel which allows the continuous growth of pure strains of fibroblasts, epithelium and leukocytes in a medium which undergoes but slight spontaneous deterioration. The principle of the method is to leave the tissues undisturbed while the medium is changed. This was realized by special containers allowing the change of the medium without bacterial contamination and by the simultaneous use of a solid and a fluid medium. The method is used for the study of the morphologic and dynamic changes occurring in tissues under the influence of chemical and physical factors.

Nasopharyngeal Secretions in Common Colds.—The transmission of a clinical condition similar to typical, infectious common cold from man to man with the filtered nasopharyngeal washings of early cases of the disease, Olitzky and McCartney state, indicate that the incitant is filterable, thus confirming the earlier observations of Kruse and Foster.

Determination of Specific Gravity of Red Cells.—The method employed by Reznikoff depends on the use of two miscible liquids of different specific gravities, into which the sedimented corpuscles can be dropped. By varying the proportions of the liquids, a medium can be obtained in which the cells neither sink nor rise but remain suspended. The specific gravity of the red blood cells is the same as that of the mixture. Reznikoff uses a mixture of benzyl benzoate and cotton seed oil.

Lung Volume in Heart Disease.—The lung volumes in a group of individuals suffering from chronic cardiac disease have been studied by Binger by a method which is applicable to patients suffering from dyspnea. In a number of instances the same patients were investigated during various stages of decompensation and compensation. The values found have been compared with those determined in a group of normal subjects. The significance of these changes is discussed and an explanation offered for the occurrence of a residual air of normal volume in patients with heart disease. It results from a combination of two tendencies working in opposite directions: one to increase the residual air—stiffness of the lungs (Lungenstarre); the other to decrease it—distended capillaries (Lungenschwellung), edema, round cell infiltration.

Blood Changes After Obstruction of Esophagus and Cardia.—Ligation of the cardiac end of the stomach or of the esophagus in ten dogs produced a severe toxemia, and rapid death. In seven of the animals there occurred a marked rise in the total nonprotein nitrogen and urea nitrogen of the blood. The dogs living longest with cardiac obstruction showed a fall in blood chlorids and a rise in the carbon dioxid combining power of the plasma. All the dogs with an obstruction of the esophagus showed a fall in blood chlorids. Control animals subjected to other types of abdominal operations showed no significant changes in the blood.

Journal of Infectious Diseases, Chicago

33: 369-476 (Nov.) 1923

*Intestinal Spirochetes. L. W. Parr, Chicago.—p. 369.
Germination of Spores of B. Botulinus in Collodion Sacs in Abdomen of Guinea-Pigs and Rabbits. G. E. Coleman, Santa Barbara, Calif. —p. 384.
Bacillus Pestis. R. D'Aunoy, New Orleans.—p. 391.
*The Common Cold. E. O. Jordan, J. F. Norton and W. B. Sharp.—p. 416.
*Effect of Kaolin on Intestinal Flora in Normal and Pathologic Conditions. L. H. Braafladt, Chicago.—p. 434.
*II. Chemotherapy of Experimental Typhoid Carrier Condition. T. D. Beckwith, Berkeley, Calif.—p. 457.
Modification of Klein Medium for Isolation of Diphtheria Bacillus. E. Megrail, Cleveland.—p. 466.
Hydrogen-ion Studies. IX. Preparation of Specific Precipitin as Dry Powder. E. F. Hirsch, Chicago.—p. 470.

Intestinal Spirochetes.—Intestinal spirochetes were found by Parr in approximately a third of all residents examined. They seem to enter into severe intestinal disorders in a secondary rôle in occasional cases. While the degree of infestation of healthy persons is slight, amounting usually to less than a twentieth of the entire microbial flora, there appear to be those who always excrete some spirochetes in every stool. On the other hand, there appear to be those who never harbor the intestinal spirochete. A carbohydrate diet appears to discourage the presence of intestinal spirochetes and may even cause them to disappear temporarily. The ingestion of acidophilus milk has the same effect. Protein feeding may favor the presence of spirochetes if it does not produce a condition of such metabolic unbalance as to suppress them. Fasting tends to diminish the number of intestinal spirochetes found in the stools. The administration of calomel failed to drive out the spirochetes or in any significant way to affect their abundance. All animal inoculation work has been uniformly negative.

The Common Cold. — Sixteen hundred students from Chicago, California, Pasadena and Galveston, Texas, furnished the data reported on by Jordan, Norton and Sharp. The results of their laboratory investigations correspond, in the main, with those obtained by other investigators. No one organism or group of organisms has been shown to predominate during colds. The question of a specific infectious virus is, therefore, still open. The common cold generally starts in the nose. About one third of these colds extend to the chest. The sequence of the local symptoms in colds is not uniform. There is no definite correlation between type, duration, severity and frequency of colds, except that infrequent colds tend to run a milder course. In the California and Galveston groups, colds, while of about the same yearly frequency as in the Chicago group, tended to be concentrated into a shorter period, were of somewhat less severity and of somewhat shorter duration. In general, however, the differences in the three groups were less than might be expected on the basis of climatic conditions alone. Of the persons from whom data were gathered, 64 per cent. believed that their colds were induced by some strain on the heat regulating mechanism of the body. Possible contact with others having colds was stated by 22 per cent. of persons questioned to have perceded their own colds. "Resistance building" practices apparently had little effect on the frequency of colds. The data do not show that nose or throat operations result in a marked reduction of the frequency of colds. Whether or not a cold is the result of a specific infectious process is unknown. It is clear, however, that outside influences, particularly those involving chilling of the body, may serve to induce a cold, even if these influences cannot be regarded as the most important etiologic factors.

Effect of Kaolin on Intestinal Flora.—A study of 100 consecutive cases of Asiatic cholera was made by Braafladt during an epidemic which swept China in 1919. Kaolin was used with success. Kaolin does not act as an antiseptic, but it "carries down with it" large numbers of bacteria in fluid mediums when mixed with them and kept in motion for two or three hours. Whether this is a purely mechanical action, or whether koalin has some specific attraction for bacteria, is not clear. When not kept in motion it does not reduce the number of bacteria to any extent. It combines with toxins and toxic products of *Vib. cholerae, B. dysenteriae* (Shiga), *B. diphtheriae, B. botulinus, B. typhosus, B. paratyphosus* B, and, perhaps, of putrefactive and proteolytic bacteria, rendering them harmless. When taken by mouth over a period of from ten to thirty days, in sufficient quantities (1 or 2 ounces [30 to 60 gm.] per day for a man), it changes the intestinal flora of rats, dogs and men from a predominantly proteolytic type to an aciduric one. It practically eliminates *B. welchii* from the stool; it does not upset digestion. It has been used with success in Asiatic cholera, bacillary dysentery, chronic ulcerative colitis and acute enteritis.

Chemotherapy of Experimental Typhoid Carrier Condition.—A series of experiments was carried out by Beckwith for the purpose of determining the possible effectiveness of certain compounds for clearing up experimentally produced rabbit carriers of *B. typhosus*. In these were included: (1) arsphenamin and neo-arsphenamin, (2) iodin, (3) acid dyestuffs. None of these was effective for the purpose sought. Certain temporary changes in the growth habit of *B. typhosus* may be encountered as a result of intravenous injection of particular dyestuffs.

Journal of Radiology, Omaha

4: 343-380 (Oct.) 1923

Radiation Dosage. F. C. Wood, New York.—p. 343.
Bone Tumors, Benign Bone Cysts Due to Central Osteitis Fibrosa of Unhealed Latent Type. J. C. Bloodgood, Baltimore.—p. 345.
Pericarditis with Effusion. F. M. Hodges, Richmond, Va.—p. 351.
Hoelfelder Technic in Deep Therapy. L. S. Goin, Peoria, Ill.—p. 354.
System of Roentgen-Ray Anthropometry (The Skull). A. J. Pacini, Chicago.—p. 358.
Objections to Use of "One Lethal Dose" Method in Malignancy. C. H. Nims, Hot Springs, Ark.—p. 364.

Kansas Medical Society Journal, Topeka

23: 235-268 (Sept.) 1923

Treatment of Eclampsia. H. M. Glover, Newton.—p. 235.
Unilateral Destruction of Kidney. A. D. Gray, Topeka.—p. 238.
Arterial Hypertension. R. H. Major, Atchison.—p. 241.
Cerebrospinal Fluid in Acute Anterior Poliomyelitis. W. C. Menninger, Topeka.—p. 248.
Medical Ethics and Etiquette. F. M. Wiley, Fredonia.—p. 251.

23: 303-334 (Nov.) 1923

Experience with One Hundred Consecutive Fractures. D. E. Broderick, Wichita.—p. 303.
Treatment of Acne. H. G. Collins, Topeka.—p. 307.
Hospital Ethics. E. S. Edgerton, Wichita.—p. 309.
Poliomyelitis Epidemic in Topeka. E. G. Brown, Topeka.—p. 310.
Laboratory Methods. L. G. Heins, Abilene.—p. 312.
Cause or Causes of Hypertension. A. C. Frack, Fredonia.—p. 315.

Laryngoscope, St. Louis

33: 731-810 (Oct.) 1923

Pathology of Deafmutism. J. S. Fraser, Glasgow, Scotland.—p. 731.
Plastic Labyrinthitis, Probably of Congenital Syphilitic Origin. W. G. Shemeley, Jr., Philadelphia.—p. 781.
Surgical Emphysema Following Tonsillectomy. S. Stein, New York.—p. 785.
Case of Laryngeal Stenosis. E. M. Josephson, New York.—p. 790.
Roentgen-Ray Therapy in Chronic Tonsillitis. J. W. Babcock, New York.—p. 796.
Deductions from Examination of One Thousand Adult Throats. S. R. Skillern, Jr., Philadelphia.—p. 800.
Treatment of Acute and Chronic Dacryocystitis with Silver Cannulas. J. F. Callahan, Brockton, Mass.—p. 805.

Maine Medical Association Journal, Portland

14: 49-70 (Oct.) 1923

Cervical Lacerations and Leukorrhea. A. P. Leighton, Portland.—p. 49.
Septic Ear. W. D. Rankin, Woodstock, N. B.—p. 58.
Health Examination. H. Emerson.—p. 62.

Mental Hygiene, Albany

7: 673-896 (Oct.) 1923

Relation of School to Mental Health of Average Child. J. Taft.—p. 673.
Cadet Problems. H. N. Kerns, West Point.—p. 688.
Psycho-Sexuality of College Graduate Men. M. W. Peck and F. L. Wells, Boston.—p. 697.
Case Studies in Mental Problems of Later Adolescence. Mental Hygiene of College Student. D. A. Laird, New Haven.—p. 715.
Sex Education in Light of Analytic Experience. C. P. Oberndorf, New York.—p. 734.
Methods of Recreational Adjustment as Form of Social Case Treatment. C. Wannamaker, Chicago.—p. 744.
Psychiatric Point of View in Social Work. G. Marcus, New York.—p. 755.
Mentally Retarded Child in Public Schools. C. S. Berry, Detroit.—p. 762.
Mental Health of 581 Offspring of Nonpsychotic Parents.—p. 770.
Outlook for Vocational Guidance in Great Britain. D. Fryer.—p. 779.
Histories of 79 Feebleminded Girls Under Supervision. E. Greene, New York.—p. 785.
Year's Progress in New York State in Care of Mental Defectives. S. Brown, New York.—p. 796.
Social Service in Relation to Patients in Boston State Hospital Not Over Twenty-Five Years of Age at First Admission. K. E. Howland, Traverse City, Mich.—p. 804.

Military Surgeon, Washington, D. C.

53: 313-410 (Oct.) 1923

What United States Public Health Service is Doing to Prevent Spread of Leprosy in Continental United States. E. R. Marshall.—p. 313.
Uniform Nomenclature for Blood Counting. R. E. Scott and R. W. French.—p. 321.
Immunity Following Smallpox Vaccination. S. J. P. Leake.—p. 328.
Tuberculous Exservice Man and Medical Reserve Corps Officer. M. R. McBrayer.—p. 337.
Report of Observation Trip in Germany, Denmark and England. M. A. Reasoner.—p. 344.
Is Chemical Warfare More Inhuman Than Gunfire. A. P. Francine.—p. 365.
Influence of Endocrines on Growth and Development. W. C. Porter. p. 371.

New York State Journal of Medicine

23: 435-474 (Nov.) 1923

Inflammatory Pseudotumor of Orbit. W. L. Benedict and M. S. Knight, Rochester, Minn.—p. 435.
Results of Three Hundred and Nine Goiter Operations. G. E. Beilby, Albany.—p. 440.
*Diagnosis of Carcinoma of Rectum. F. C. Yeomans, New York.—p. 443.
Limitations in Radiotherapy of Cancer. F. C. Wood, New York.—p. 446.
Neurology in Greater New York. C. L. Dana and T. K. Davis, New York.—p. 449.
*Analysis of Five Hundred Deaths from Diphtheria Occurring in New York State (Exclusive of New York City) in 1922. B. E. Roberts, Albany.—p. 452.

Diagnosis of Carcinoma of Rectum.—Yeomans reports on 108 cases of carcinoma of the rectum or rectosigmoid. The tumor was palpable in ninety-seven cases so that in only eleven was the protoscope essential to determine the presence of a growth at a higher level. The tumor involved the anterior rectal wall in thirty-nine cases; the posterial wall in thirty-two cases; was lateral in seven and annular in thirty cases. The growth felt movable in sixty cases and fixed in forty-eight. In the majority of cases the neoplasm was ulcerated, and in ten cases it had infiltrated adjacent organs. Biopsy was performed in thirty-two cases. T gnosis was: adenocarcinoma in twenty-four cases, epithelioma in four, colloid carcinoma in two cases, and malignant adenomatous polyp and angiosarcoma, each one case.

How to Reduce Diphtheria Mortality.—The analysis made by Roberts tends to confirm the conclusion of previous observers that the death rate is practically nil when adequate treatment is given on the first day of the disease, with proper surgical measures, when indicated, and with good care during the course of the illness and convalescence. Roberts urges that the intravenous method of administration of antitoxin should be more widely used, especially in severe cases or in moderate cases seen later than the second day of the disease. In the 500 deaths considered in this analysis, the intravenous method was not known to have been used on the first day of the disease in a single instance. When the intravenous method is not used, antitoxin should be given intramuscularly. The subcutaneous method should be used only for prophylactic doses given to exposed persons. Antitoxin should immediately be given in adequate dosage in all cases in which there is any clinical evidence of diphtheria. In the present series, delay in administering antitoxin was definitely a factor in the cause of death in at least eighty-five cases. In fifty cases in which no antitoxin was given, failure to make a diagnosis was a factor in at least nineteen instances. The analysis shows that antitoxin was given on more than one day in 33 per cent. of the cases in which it was known on how many days antitoxin was given. Proper surgical treatment in laryngeal cases is extremely important. Of the 110 deaths from respiratory obstruction in these cases, fifty-eight had no surgical treatment of any sort. Roberts urges that greater attention be paid to the care of patients during convalescence. This need is borne out by the fact that cardiac involvement was stated to have played a part in nearly one half of all the deaths, and that in twenty-four of these cardiac cases failure to keep the patient at rest was definitely mentioned as the immediate factor in the fatal outcome.

Southwestern Medicine, Phoenix, Ariz.

7: 401-452 (Nov.) 1923

*Granuloma Inguineale: Report of Case. R. T. Frank, Denver.—p. 401.
Thyroid and Psychiatry. K. A. Menninger, Topeka, Kan.—p. 403.
Postnasal Tumors; Fibroma. F. P. Schuster, El Paso.—p. 407.
Focal Infections in Relation to Abnormalities of Vision. W. E. Scarborough, Albuquerque, N. M.—p. 411.
Splenic Anemia. O. Egbert and B. F. Stevens, El Paso.—p. 413.
*Congenital Absence of Anus and Rectum. H. A. Miller, Clovis, N. M. —p. 416.
Case of Hypertension Due to Endocrin Disturbance. S. D. Swope, El Paso.—p. 417.

Granuloma Inguinale.—The case reported by Frank was unrecognized for three years and the patient was first operated on for carcinoma and then treated for syphilis. A clinical diagnosis was readily made from the gross appearance—a warty, nodular, superficial, granular, bright, red lesion of the vulva and vagina. The histologic, serologic and bacteriologic tests excluded syphilis, tuberculosis and carcinoma. The effect of treatment confirmed the diagnosis.

Congenital Absence of Anus and Rectum.—Not being able to find the blind pouch of the rectum in the usual way in his case, Miller did a left colostomy. A long blunt curved forcep was then inserted in the colostomy wound toward the caudad end of the intestine. There was found to be quite a spacious blind pouch; with a finger in the lower wound, the forcep was pushed forward, and hugging the hollow of the sacrum the pouch was delivered in the wound below and sutured to the skin margin and opened. About two months later, the baby was returned with the history that the colostomy wound had closed in about four weeks. The anus was discharging bowel contents, but the instructions about gentle dilatation had not been carried out, hence the opening was too small. It was dilated by forceps and finger and a firm rubber tube was inserted about 1½ inches and sutured to the skin with instruction to irrigate freely with sterile saline and leave in place for at least three weeks. There is now no incontinence.

Surgery, Gynecology and Obstetrics, Chicago

37: 579-528 (Nov.) 1923

*End-Results in Nearly Three Hundred Cases in Which the Gallbladder was Drained, Not Removed. H. L. Darner, Baltimore.—p. 579.
Treatment of Duodenal Fistula. Report of Case. A. L. Cameron, Minneapolis.—p. 599.
*Usefulness of Duodenal Tube. M. Finkelstein, Winnipeg, Manitoba. —p. 607.
Actinomycosis of Head and Neck. G. B. New and F. A. Figi, Rochester, Minn.—p. 617.
Radium Therapy in Carcinoma of Rectum. H. A. Kelly and G. F. Ward, Baltimore.—p. 626.
Tuberculous Tenosynovitis of Hand. Report of Fourteen Cases. A. B. Kanavel, Chicago.—p. 635.
Adenomyoma Involving Signoid. Five Cases. E. S. Judd and G. S. Foulds, Rochester, Minn.—p. 648.
Postoperative Renal Hemorrhage. A. Jianu, Bucarest, Roumania.— p. 653.
*Pathology and Treatment of Chronic Leukorrhea. A. H. Curtis, Chicago.—p. 657.
Fifty-Nine Breech Presentations Treated by Prophylactic External Version. G. H. Ryder, New York.—p. 660.
Retroperitoneal Operation for Subphrenic Abscess. Report of Two Cases. C. Nather, Vienna, and E. W. A. Ochsner, Chicago.—p. 665.
Open Operation for Congenital Dislocation of Hip. H. P. H. Galloway, Winnipeg, Manitoba.—p. 674.
Reconstruction of Urethra After Complete Loss, Complicating an Extensive Vesicovaginal Fistula. G. G. Ward, New York.—p. 678.
Cancer of Upper Jaw; Its Surgical Treatment. W. S. Schley, New York.—p. 683.
Major Urologic Surgery Under Sacral and Parasacral Anesthesia. O. S. Lowsley, New York.—p. 688.
Three Aids to Render Conduct of Labor More Scientific. J. B. DeLee, Chicago.—p. 693.
Use of Fat to Prevent Sutures Cutting Into Parenchymatous Organs by Underpinning. D. Beer, New York.—p. 694.
Intraperitoneal Hemorrhage in New-Born Following Thies' Method of Resuscitation. M. P. Rucker and S. W. Budd, Richmond, Va.— p. 695.

Drainage of Gallbladder.—Darner believes that drainage of the gallbladder is the safer and easier procedure in the hands of the average surgeon and in the average case. In a second operation should become necessary, cholecystectomy should be considered seriously. No hard and fast rules can be laid down. Each case must be considered by itself.

Usefulness of Duodenal Tube.—Five hundred cases were studied by Kinkelstein and he concludes that duodenal drainage is a helpful clinical method in the diagnosis and treatment of early diseases of the biliary system. Cases of suspected gallbladder lesions that have come to operation have had the preoperative duodenal drainage diagnosis definitely confirmed. This method presents an important means of determining the presence of parasites and their ova or focal infection of the biliary tract, conditions which may be of the greatest diagnostic and therapeutic value in obscure conditions, such as arthritis, neuritis, etc. Therapeutically, the method has proved to be extremely valuable in the early stages of catarrh and infection of the biliary tract, biliary stasis, chronic biliousness, and severe migraine. The duodenal tube cannot, by any manner or means, supplant surgery, when gross pathologic lesions exist, but when surgical interference is contraindicated, because of a heart or kidney complication, the tube offers an alternative which in not a few cases affords much relief. In cholecystectomized patients who still complain of trouble in the right hypochondrium, the tube has been useful in clearing up the stasis and infection, which could not be treated surgically.

Treatment of Chronic Leukorrhea.—Available measures in the control of chronic leukorrhea, Curtis says, consist in eradication of gland infection in the vicinity of the urethra, dilatation of cervical strictures, and destruction of hyperplastic glandular tissues of the cervix. Whether the latter is to be accomplished by endocervix removal or through the use of the radium should depend on the character of the pathology encountered, modified by the experience of the surgeon in charge. Destruction of infected Skene's ducts and urethral glands, together with thorough dilatation and radium treatment of the cervix, has been followed by recovery from chronic leukorrhea in 87 per cent. of 104 patients.

Tennessee State Medical Association Journal, Nashville

16: 197-238 (Oct.) 1923

Experimental Work with Iletin (Insulin) in Treatment of Diabetes. Report of Cases. H. Litterer and S. R. Teachout, Nashville.—p. 197.
Management of Diabetes Mellitus. Treatment with Insulin. R. C. Derivaux, Nashville.—p. 203.
Organic Syphilis of Stomach. J. D. Lester, Nashville.—p. 207.
Wassermann—Fast Syphilis. B. W. Fontaine, Memphis.—p. 214.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

28: 129-160 (Oct.) 1923

Treatment of Actinomycosis by Roentgen Rays. Report of Nine Cases. C. P. G. Wakeley.—p. 129.
Cauterization of Adhesions in Artificial Pneumothorax Treatment of Pulmonary Tuberculosis Under Thorascopic Control. H. C. Jacobaeus.—p. 136.
Radiography of Fetus in Utero. T. I. Candy.—p. 146.
Radium Dermatitis. M. S. Thomson and C. P. G. Wakeley.—p. 153.

British Journal of Ophthalmology, London

7: 449-496 (Oct.) 1923

Blood Pressure in Eye; Relation to Chamber Pressure. P. Smith.—p. 449.
Pectinate Ligament in Relation to Chronic Glaucoma. H. Herbert.—p. 469.

British Medical Journal, London

2: 847-906 (Nov. 10) 1923

Habits (Ecology) of Tumors. J. Bland-Sutton.—p. 847.
Arsenical Pigmentation of Mouth and Skin. R. Stockman.—p. 852.
*Rationale of Parathyroid Therapy. H. W. C. Vines.—p. 854.
*Epidemic Hiccup and Lethargic Encephalitis. W. R. Brain.—p. 856.
Summer Diarrhea. D. Nabarro.—p. 857.
*After Results of Abdominal Tuberculosis in Children. H. T. Ashby.—p. 863.
Treatment of Tuberculous Cervical Adenitis by Radium. E. S. Molyneux.—p. 865.
Reaction of Blood in Children. R. Conway-Verney.—p. 866.
Labyrinth Deafness. D. McKenzie.—p. 867.
Retrobulbar Neuritis of Nasal Origin. E. D. D. Davis.—p. 873.
Canfield's Operation on Antrum. J. Dundas-Grant.—p. 874.
Butyn as Local Anesthetic in Nose and Throat Practice. W. Hill.—p. 876.
Hydrocephalus Following Spina Bifida. A. P. Birtwistle.—p. 877.
Sporadic Case of Myoclonus Multiplex. J. C. Ramsay.—p. 878.
Facial Paralysis Following Herpes Facialis. J. W. Tomb.—p. 878.

Parathyroid Therapy.—Parathyroid therapy, as stated by Vines, is considered a means of reestablishing the normal endocrine balance of the body, which infection has disturbed. Emphasis is laid on the point that the balance between sympathetic and parasympathetic must be brought back to the normal level; adequate resistance to disease is not a function either of the sympathetic system or of the parasympathetic system, but of the equilibrium between them.

Relation Between Epidemic Hiccup and Lethargic Encephalitis.—After suffering for a month from intermittent brief attacks of hiccup, Brain's patient developed a typical though mild attack of the lethargic form of encephalitis with ocular palsies. Two months later, after further brief attacks of hiccup, an attack of hiccup developed which lasted eight days, and for which the patient was admitted to hospital. On admission she exhibited cranial nerve palsies, hiccup, and also myoclonic movements of the arms and abdominal wall. This, in Brain's opinion, would seem to establish finally the relationship between epidemic hiccup and epidemic encephalitis.

After Results of Abdominal Tuberculosis in Children.—Ashby has followed up 250 cases of abdominal tuberculosis in childhood for a number of years, and has analyzed results. Many patients are apparently cured for a time, but have a relapse later on. The outlook is virtually hopeless under the age of 1 year, and not much better under the age of 2 years. However, as the age increases, the outlook improves considerably. The more that can be felt in the abdomen, the worse, as a rule, is the outlook. The type with ascites does better on the whole than the other types, and this class of case often responds well to operative treatment. The after-histories of children who have had abdominal tuberculosis and who have kept well for some years are good, even though there are still enlarged calcareous glands felt in the abdomen. Of the 250 cases analyzed a cure was effected in 56 per cent.

Journal of Laryngology and Otology, Edinburgh

38: 565-620 (Nov.) 1923

Nasopharyngeal Fibroma. P. G. Goldsmith.—p. 565.
Two Cases of Chronic Hyperplasia of Upper Jaw: Relationship to Other Osseous Tumors and to Otosclerosis. D. Guthrie.—p. 575.
Statistical Tables for 1922, from Ear and Throat Department of Royal Infirmary, Edinburgh. J. M. Gibson and A. G. Brough.—p. 580.

Journal of Physiology, London

58: 1-110 (Oct.) 1923

Physiology of Plain Muscle. I. Effect of Alteration of Hydrogen-Ion Concentration. S. W. F. Underhill.—p. 1.
Isolation of Different Parts of Digestive Tract as Method of Studying Its Movements. B. P. Babkin and E. I. Sinelnikov.—p. 15.
*Absorption of Insulin From Stomach. L. B. Winter.—p. 18.
Physiology of Plain Muscle. II. Oxygen Usage and Relation of Tonus. C. L. Evans.—p. 22.
*Does Insulin Influence Glycogenic Function of Perfused Liver of Turtle? E. C. Noble and J. J. R. Macleod.—p. 33.
Rate of Recovery of Nerves in Asphyxia. S. Cooper.—p. 41.
Antidromic Action. II. Stimulation of Peripheral Nerves of Cat's Hind Foot. J. N. Langley.—p. 49.
*Vascular Dilatation Caused by Sympathetic and Course of Vasomotor Nerves. J. N. Langley.—p. 70.
*Ovarian Factor Concerned in Occurrence of Oestrus. F. H. A. Marshall and W. A. Wood.—p. 74.
*Regulation of Respiration. T. Lumsden.—p. 81.
Ergometer Adaptable for Either Hand or Foot Movements. E. P. Cathcart, G. M. Wishart and J. McCall.—p. 92.
*Nerve Regeneration from One Into Other of Two Rats United in Siamese Pairs. B. Morpurgo.—p. 98.
Comparison Between Colorimetric and Electrometric Methods of Determining Hydrogen Ion Concentration of Blood. R. Conway-Verney and L. E. Bayliss.—p. 101.
*Possible Relation Between Pancreas and Parathyroids. L. B. Winter and W. Smith.—p. 108.

Absorption of Insulin from Stomach.—The activity of the crude insulin used by Winter in his experiments was such that the subcutaneous injection of 40 mg. into a rabbit weighing 1.5 kg. caused convulsions in two and a half hours. The insulin was dissolved in from 15 to 25 c.c. of 20 per cent. alcohol. The blood sugar fell to a low level. It was evident, therefore that absorption of the insulin must have taken place from the somach. In those cases in which convulsions occurred, no difficulty was experienced in recovering the animals with glucose. In experiments with smaller quantites of insulin, 60 mg., an appreciable effect was noted, and in one experiment half this amount reduced the blood sugar to 0.04 per cent. Convulsions did not actually occur and the animal recovered without the aid of glucose. A delayed action following the administration of insulin per os has not been noticed. That the alcohol was responsible for the absorption of the insulin was shown by a control experiment in which 60 mg. of insulin was given per os, dissolved in physiologic solution of sodium chlorid. No effect on the blood sugar was observed. Another experiment in which the same amount was given per os, dissolved in twentieth normal sodium hydrate solution, gave negative results.

Does Insulin Influence Glycogenic Function of Liver.—The conclusion reached by Noble and Macleod is that the rate of postmortem glycogenolysis in excised turtle liver is not influenced by the presence of varying concentrations of insulin at ranges of p_H between 7.0 and 7.4.

Vascular Dilatation.—The results of experiments with cats have convinced Langley that periarterial section in man, so far as it relieves peripheral vasoconstriction, in all probability does not do so by severing nerve fibers running with the arteries to the periphery.

Ovarian Factor Concerned in Occurrence of Estruation.—Experiments performed by Marshall and Wood on dogs show that if all the graafian follicles visible on the surface of the ovary are cauterized, and therefore probably destroyed, a short time before a heat period is due, then the period is missed and there is a prolonged period of anestruation which may extend over the duration of two or more normal estrual cycles. That the uterus does not undergo atrophy is shown by the subsequent reappearance of heat and the resumption of normality. If the follicles are cut into without being destroyed, heat is not postponed or only slightly so. The general conclusions reached are that preestruation and estruation are due to an internal secretion of the ovary produced by the follicles during the preinseminal stage of development. The secretion which is responsible for uterine and mammary hypertrophy during pregnancy and pseudopregnancy is different, and is produced by the corpus luteum. There is also an ovarian internal secretion which is responsible for maintaining the normal nutrition of the uterus and preventing it from lipsing into an infantile or atrophic condition, and this produced by the smaller follicles or by the interstitial cells. These three ovarian secretions probably differ from one another qualitatively as well as quantitatively.

Regulation of Respiration.—Lumsden asserts that the factors which regulate the three lower respiratory centers are partly chemical (lack of oxygen and excess of carbon dioxid) and partly nervous (vagal and trigeminal impulses mainly).

Nerve Regeneration in United Rats.—If two rats are united parabiotically, no nervous connections are formed between them. Experiments have been carried out by Morpurgo in order to determine whether this was due to the incapacity of the nerves of one individual to grow into the other. For this purpose, artificial nervous conneciton were made in Siamese pairs of rats. The results indicate that nervous connections are formed. For instance, the sciatic trunk of the left hand rat sends branches both into the leg of the right hand rat and into that of the left hand one; a nerve path in the shape of a Y turned upside down is formed which, from the legs of both rats, reaches the spinal cord of the left hand rat. The regeneration of the nerve endings takes place in both rats. Muscle spindles and neurotendinous organs also regenerate.

Relation Between Pancreas and Parathyroids.—The fact that ephinephrin and thyroid extract have been found to raise the blood sugar of rabbits in such a manner as to maintain the normal ratio, copper reducing to polarimetric value suggested to Winter and Smith that the parathyroids might exercise some function on the carbohydrate metabolism in conjunction with another ductless gland. Injection of parathyroid alone was found to be without appreciable effect on the blood sugar, but injection of parathyroid extract into animals suffering from hypoglycemic convulsions due to insulin, had a very marked effect. The animals quickly became rigid and died in a few minutes.

Journal of Tropical Medicine and Hygiene, London

26: 313-324 (Oct. 15) 1923

Withdrawal of Fluid from Chest by Trocar and Cannula and Syphonage Without Excision of Ribs. J. Cantlie.—p. 313.

Lancet, London

2: 963-1016 (Nov. 3) 1923

*Principles of Symptomatology. I. J. Mackenzie.—p. 963.
*Simulation of Active Pulmonary Tuberculosis by Painless Maxillary Sinusitis. A. L. Yates.—p. 968.
*Incidence of Malignant Disease in Apparently Benign Enlargement of Prostate. R. H. J. Swan.—p. 971.
Applications of Nomography to Medicine. W. A. M. Smart.—p. 974.
*Case of Exemphalos. F. Blake.—p. 976.
*Case of Osteo-Arthritis in Childhood. P. Weatherbe.—p. 976.

Principles of Symptomatology.—Believing that a great mass of symptoms are produced by the disturbance of normal reflexes and that a great group of symptoms is the result of an increase or decrease of functional activity, Mackenzie and his associates are now studying what is meant by stimulation and inhibition. This has led to a long and intricate inquiry and has exposed many avenues for investigation. The principle of the reflex arc is here discussed at length and a new concept—the law of fluctuation—is mentioned.

Simulation of Pulmonary Tuberculosis by Maxillary Sinusitis.—Yates discusses the cases of patients, who, while exhibiting all the symptoms of pulmonary tuberculosis, are in fact suffering from sinusitis of such a nature that no localizing symptoms are present. Many of these cases had been diagnosed as pulmonary tuberculosis. They generally presented not only the symptoms of tuberculosis—namely, cough, often waking the patient at night; morning sputum, yellow or green in color, and often nummular; progressive wasting, a rise of temperature in the evening and after exercise—but also certain physical signs in the chest due apparently to bronchitis, which, while not typical of tuberculosis were sufficient to render it extremely difficult to negative the diagnosis of pulmonary tuberculosis; the fact of the absence of tubercle bacilli in the sputum does not, apparently, negative the presence of pulmonary tuberculosis.

Incidence of Malignant Disease of Prostate.—In a series of 678 prostates removed by operation and submitted for pathologic examination, no less than 174, or 25.7 per cent., were definitely malignant, while fifty-eight others, or 8.6 per cent., are classified as borderline or precancerous cases; 443, or 65.3 per cent., were innocent (adenomatous), and three, or 0.4 per cent., were tuberculous. Swan himself has had four cases out of twenty-eight consecutive prostatectomies. These cases emphasize the comparative frequency with which carcinoma may exist as an undetected focus in a prostate which is the seat of senile enlargement. In the breast, in the tongue, the stomach and the intestine, as well as in other organs, carcinoma may occur in areas which have been the seat of simple chronic inflammation or of ulceration. Swan wonders whether the same sequence may not occur in the prostate, and thus carcinoma commence as a focus in a gland already the seat of benign enlargement.

Exomphalos.—In Blake's case there was a defect in the middle line of the body from the umbilicus to the sternum, and the liver, gallbladder, jejunum, ileum, ascending and transverse colons, were outside the body cavity and merely covered with amnion.

Osteo-Arthritis in Child.—Weatherbe's patient was only 4 years of age and had been bedridden since the deformity began at 18 months of age. There was absolute ankylosis of the left elbow joint; the left wrist joint was swollen and stiff, and impossible to dorsiflex, but easily flexed, with no tenderness or pain in these two joints. Both knees were flexed beyond a right angle and ankylosed in this position with swelling and slight tenderness. Both ankle joints were swollen and stiff with very limited movement.

Medical Journal of Australia, Sydney

2: 377-400 (Oct. 13) 1923

Breast Feeeding. S. F. McDonald.—p. 379.
Diagnosis of Silicosis. W. Watkins-Pitchford.—p. 382.
Use of Insulin. J. Sprent.—p. 384.
*Thrombosis of Superior Mesenteric Vein. K. J. G. Wilson.—p. 386.

Thrombosis of Superior Mesenteric Vein.—Wilson's patient was admitted to the hospital complaining of severe pain in the abdomen of five days' duration. At first it was colicky; then as it increased in severity it became continuous. She vomited several times and the pain lessened considerably, so that two days after the onset of the illness she felt almost well. But on the third day, the pain came on again, with greater severity than before. She vomited many times and, in fact, kept no food down. After admission, the pain was not very severe while she was at rest, but increased in severity on movement. She had vomited last in the morning. She was constipated. The diagnosis of subacute intestinal obstruction was made and operation advised. As soon as the peritoneum was incised, an appreciable amount of fluid escaped, at first clear, but later blood stained. The small intestine was distended, bluish in color and lusterless. The arteries formed a visible network in its walls, were engorged and raised above the surface of the bowel. When the upper part of the mesentery of the small intestine was examined, a clearly visible dark swelling was seen at its root. On palpation it proved to be a collection of firm nodular clots in the lumen of the superior mesenteric vein, completely blocking the lumen. It was decided to close the abdomen and allow egress to any accumulation of toxic fluid in the peritoneal cavity by a pelvic drain. At the end of the second day after operation a simple enema acted well with a formed stool. Enemata were given every second day until the seventh day, when aperients were given by mouth, when necessary. The abdomen remained distended for three days and then gradually subsided. Fluid diet (water and milk) was given for fourteen days, when the diet was increased to full amount. Evidently gradual recovery occurred through the inferior mesenteric vein taking on the function of the superior vein.

South African Medical Record, Cape Town

21: 437-460 (Oct. 13) 1923

Acute Diarrhea of Infants. B. G. Melle.—p. 439.
Complications of Diarrhea and Vomiting. F. S. D. Berry.—p. 443
Bacteriology of Diarrhea. J. Pratt-Johnson.—p. 443.
Care of Pregnant Woman. C. W. Comrie-Sharp.—p. 446.
Duration of Human Life in Different Parts of South Africa. C. Pijper.—p. 448.

Annales de l'Institut Pasteur, Paris

37: 787-878 (Sept.) 1923

*Lipoids from Tubercle Bacilli. A. Boquet and L. Nègre.—p. 787.
*Algid Phase in Cholera. G. Sanarelli.—p. 806.
Morbid Sensitivity. M. Nicolle and E. Césari.—p. 837.
*Destruction of Fixed Virus. P. Remlinger.—p. 852.
Complement Fixation in Bovine Tuberculosis. Brocq-Rousseu, A. Urbain and Cauchemez.—p. 872.

Lipoids from Tubercle Bacilli.—Boquet and Nègre state that extracts of tubercle bacilli made with methyl alcohol or with acetone fixed complement with the serum from tuberculous animals, and produced complement fixing antibodies. The methyl alcohol extract, however, did not produce anaphylaxis. Similar extracts of diphtheria bacilli and a suspension of lecithin from eggs reacted also with these serums. It is probable that the reaction depends on the phosphatids. Injection of methyl alcohol extracts slightly prolonged the life of tuberculous animals, while acetone extracts shortened it.

The Algid Phase in Cholera.—Sanarelli produced experimentally a condition very similar to the algid stage of cholera by injecting sublethal doses of other microbes into animals that had been previously injected with harmless doses of cholera vibrios or their proteins.

Destruction of Fixed Virus.—Remlinger publishes observations on rabbits which did not react to inoculation with *virus fixe*, or which developed merely choreiform movements instead of the typical symptoms of paralytic hydrophobia. It is possible that accidental contamination had destroyed the virus so completely that the animals remained susceptible to hydrophobia at a second inoculation.

Annales de Médecine, Paris

14: 173-256 (Sept.) 1923

Nucleus Ruber Syndrome. M. Chiray, C. Foix and Nicolesco.—p. 173.
Syphilitic Psychoses. R. Targowla.—p. 192.
Variations in Sympathetic Irritability. Laignel-Lavastine.—p. 207.
*Kidney Function in Diabetes. E. Urech.—p. 231.
*Treatment of Diabetes. M. Labbé.—p. 249.

Kidney Function in Diabetes.—Urech examined the renal function in twenty-two diabetics. It was good in young patients and was disturbed in the older subjects. There was, however, no pronounced retention of urea in the blood. The retention of sodium chlorid did not parallel the retention of water.

Treatment of Diabetes.—Labbé discusses Petrén's views on the pathology and treatment of diabetes. The central point is the theory of the dominating disturbance of protein metabolism. Proteins are much more dangerous in acidosis than fat, of which Petrén gives 200-300 gm. daily.

Archives Franco-Belges de Chirurgie, Brussels

26: 711-806 (Aug.) 1923

*Bone Syphilis. B. Dujardin.—p. 711.
*Rhizomelic Spondylosis. Peugniez.—p. 720.
*The Condition After Splenectomy. J. Silhol and Y. Bourde.—p. 744.
High Amputation for Senile Gangrene. E. Aubert.—p. 754.
*Missing Fibula. G. Peremans.—p. 764.

Syphilis of the Bones.—Dujardin enumerates the various affections of the bones due to inherited or acquired syphilis. He classifies them as the secondary or early anallergic, the tertiary or allergic parasyphilitic, and the tardy anallergic lesions. He emphasizes that during the allergic phase the susceptibility is not only for the toxins of the causal spirochetes, but for other toxins, tuberculin, and even for harmless substances like milk. Skin tests with any of these substances may elicit positive reactions and mislead the diagnosis, as in a case reported. The patient was a woman, aged 50, with a liver tumor and osteitis in the tibia, with tubercle bacilli in the scrapings. She was sent to a Swiss tuberculosis sanatorium, where she was found to have a positive Wassermann test; the osteitis recovered rapidly under treatment for syphilis. When the allergy of the tissues subsides under specific treatment, this removes the foundation for the secondary tuberculous infection, which vanishes with the syphilitic lesion. He explains further that the organism after living peaceably with its parasites suddenly develops intolerance for them, and this allergy induces a violent local reaction which acts like a fixation abscess, killing off the parasites in minor foci elsewhere. This phase of allergy is useful, further, because the violent local reaction is peculiarly amenable to specific treatment.

Rhizomelic Spondylosis.—Peugniez argues that ossification of the ligaments is the essential element in rhizomelic spondylosis. The total crippling deformity when the process was complete and stationary was overcome, in a case described, by subtrochanteric osteotomy of both hip joints. From absolute immobility and helplessness, the man has become able to walk for three or four hours a day, and sit on a seat 0.69 cm. high. [This case was summarized in these columns Sept. 1, 1923, p. 784, when published elsewhere.]

After Splenectomy.—From the medicolegal standpoint, the injury caused by splenectomy seems to be only the impairment of the abdominal wall; but before certifying to the harmlessness of the loss of the spleen, the blood must be examined for anemia, for cholesterol, and for fragility of the corpuscles, and the stools should be examined to estimate liver functioning.

Absence of the Fibula.—A bilateral congenital case, and a case of loss from osteomyelitis in a child, are reported.

Archives des Maladies du Cœur, etc., Paris

16: 625-688 (Sept.) 1923

*Oscillometry of the Pulse. R. Alexandre and R. Moulinier.—p. 625.
Aneurysms of Aorta Above the Diaphragm. Saloz and Frommel.—p. 637.
Prognosis of Inflammatory Valvular Lesions. N. Betchov.—p. 646.
Purulent Pericarditis; Recovery After Puncture. E. Cottin and M. P. Gautier.—p. 651.
**Function of the Left Ventricle.* E. Géraudel.—p. 659.

Oscillometry of the Pulse.—Alexandre and Moulinier conclude that the diagram of the oscillations of the pulse is a picture of the play of cardiac energy. But it is only a reflected and distorted picture.

Function of the Left Ventricle.—Géraudel reports, as the result of his examinations of the shape of the cavity of the left ventricle, that the changes are different in different affections.

Journal d'Urologie Médicale et Chirurgicale, Paris

16: 177-255 (Sept.) 1923

*Correlation Between Bladder and Kidneys. M. Sérès.—p. 177.
*Pseudostone Colic in Renal Tuberculosis. R. Lanzilotta.—p. 205.
*Functional Tests of Polycystic Kidneys. Negro and Colombet.—p. 216.
*Neoplasm of the Prostate. A. Cosacesco.—p. 226.
Fistula with Hypertrophied Prostate. J. Martin.—p. 229.
Double Urethra. G. Bernadet.—p. 232.
*Autoserotherapy in Gonorrhéa. A. Quenay.—p. 234.

Correlation Between Bladder and Kidneys.—Sérès investigated the polyuria which accompanies retention of urine, and found that it is more marked in the first hours of the retention and after evacuation of the bladder. In prolonged retention, oliguria is the rule. Patients with normal or exaggerated contractility of the bladder react more intensely than those with a weak muscle. Experiments on dogs proved that this polyuria is of reflex origin, and he was able to trace in the dog the afferent route from the inferior mesenteric ganglion to the kidneys. Similar anatomic conditions are present in human fetuses. These facts may prove of value in the explanation and treatment of reflex anurias.

Pseudostone Colic in Renal Tuberculosis.—Lanzillotta describes seven cases of the "pseudolithiasis" type of tuberculosis of the kidneys. The patients had typical renal colic. Examination of the urine and roentgenography furnished the differentiating signs.

Functional Tests of Polycystic Kidneys.—Negro and Colombet publish seven cases of polycystic degeneration of the kidneys from Marion's clinic. The elimination of phenolsulphonephthalein was markedly diminished in all of them, although the other tests (concentration, Ambard's coefficient) were normal or only slightly affected.

Neoplasms of the Prostate.—Cosacesco fo patien
suffering from neoplasms of the prostate a of t
wall and subsequent enlargement of the pr
tatic part of the urethra. The change ly s
with the cystoscope.

Autoserotherapy in Gonorrhea.—Quenay's experience has been that autoserotherapy (2-4 c.c. of serum) influenced favorably the complications of gonorrhea, but did not act on the urethritis at all.

Médecine, Paris

4: 813-888 (Aug.) 1923

Recent Acquisitions in Pediatrics. P. Lassablière.—p. 813.
*Mitral Disease in Children. P. Nobécourt.—p. 822.
Pneumococcus Infection in Infants. Weill and C. Gardère.—p. 824.
*Convulsions in Infants. P. Rohmer.—p. 830.
*Diagnosis of Scarlet Fever. G. Mouriquand.—p. 836.
*Maternity Home for Unmarried Women. P. Chatin and Rheuter.—p 841.
*Nephritis in Children. P. Merklen.—p. 847.
*Splenomegaly in Syphilis. M. Péhu.—p. 853.
*Adenopathies in Inherited Syphilis. G. Blechmann.—p. 859.
Therapeutic Pneumothorax in Children. P. F. Armand-Delille.—p. 863.
*Ipecac in Digestive Disturbances. A. Bérard.—p. 869.
Vulvovaginitis in Little Girls. G. Schreiber.—p. 871.
*Myxedema in Infants. G. L. Hallez.—p. 876.
Treatment of Acute Endocarditis. P. Lassablière.—p. 881.
Treatment of Rickets. L. Pélissier.—p. 882.

Mitral Disease in Children.—Nobécourt finds that combined mitral stenosis and insufficiency is about as frequent in children as pure mitral insufficiency. The differential sign is the dilatation of the left auricle in the combined form. Its symptoms and prognosis are graver than in pure insufficiency. Pure mitral stenosis is rare.

Convulsions in Infants.—Rohmer sees a physiologic predisposition to convulsions in infants. In 90 per cent. of the cases the convulsions are due to spasmophilia. Doses of 12 gm. of crystallized calcium chlorid (or 6 gm. of the anhydrous salt) given in solution daily for two weeks stop the dangerous attacks of convulsions and laryngospasm in the children.

Diagnosis of Scarlet Fever.—Mouriquand confirms the claim that Pastia's sign is characteristic of scarlet fever. It consists in a linear exanthema following the flexion folds of the skin, especially at the elbow. It was found only exceptionally in measles and in recurring scarlatiniform erythema. Schultz and Charlton's extinction phenomenon is also characteristic.

Maternity Home for Unmarried Women.—Chatin and Rheuter describe the regulations of the "Samaritaine," a house where unmarried pregnant girls are accepted and cared for medically and socially. Absolute secrecy is maintained on request of the girl.

Nephritis in Children.—Merklen reviews the differences between nephritis in children and in adults. He asserts that the urine should be examined not only after scarlet fever, but after every infectious disease and suppuration. The majority of cases are of the dropsical type. Hypertension is present in acute cases, and causes dilatation of the heart. Contrary to adults, gallop rhythm may occur in the acute stage rather than in the chronic. Enlarged liver is the rule in such cases. Albuminuria is often only intermittent, which necessitates repeated examinations. Orthostatic albuminuria has to be taken into consideration in some instances of postscarlatinal nephritis of a similar type. Syphilitic nephritis can be guessed at rather than diagnosed. Renal aplasia may be responsible for part of the disturbances.

Splenomegaly Suggests Inherited Syphilis.—Whenever the spleen of an infant is palpable a finger breadth below the costal arch, Péhu thinks of syphilis. The enlargement is not present in all cases. Other diseases which might be responsible for the splenomegaly are certain bronchopneumonias, cutaneous ulcerations and tuberculosis.

Adenopathies in Inherited Syphilis.—Blechmann reviews the frequency of small enlarged lymphatic glands in inherited syphilis in infants. The enlargement may be due to cutaneous affections (eczema, prurigo, impetigo), to tuberculosis or to syphilis. The epitrochlear (especially if affected on both sides) and the retromastoid glands are the most important.

Ipecac in Digestive Disturbances.—Bérard uses in chronic dyspepsias in children 4-40 drops of tincture of ipecac an hour or half an hour before meals. Six or more drops daily act favorably on the dyspepsia alleged to be normal in artificially fed infants.

Thyroid Treatment of Myxedema in Infants.—Hallez considers 1 cg. of dried thyroid for each 6 months of age as the proper dosage. He advises beginning with small doses and increasing if the rectal temperature remains under 37 C. or if the symptoms do not disappear. Rapid loss in weight, tachycardia, diarrhea, agitation and insomnia are contraindications. Etiologic treatment should not be omitted in syphilitic infants.

Nourrisson, Paris

11: 289-352 (Sept.) 1923

*Eczema of Infants. A. B. Marfan.—p. 289.
Blood in Experimental Scurvy. Lesné et al.—p. 304.
Inherited Syphilis. H. Lemaire and R. David.—p. 308.
*Vaginal Hydrocele in Infants. G. Salès and P. Vallery-Radot.—p. 321.
*Intestinal Motor Function in Infants. H. Blagodatny.—p. 331.

Eczema of Infants.—Marfan finds that the popular term "milk crust" expresses exactly the fact, namely, that eczemas in infants are related to the milk diet. A hereditary taint (arthritism) is necessary, but the main cause is overfeeding with milk (usually too frequent feedings), especially excessive fat content of the milk. Over 4.5 per cent. of fat in the mother's milk might be the cause. Local treatment after removal of the crusts, thyroid medication, subcutaneous injections of milk, and high altitudes (3,000-4,500 feet) are recommended.

Vaginal Hydrocele in Infants.—Salès and Vallery-Radot consider as probably syphilitic those hydroceles in the first months of infancy that last over four to six weeks after puncture. The testis is hard and smaller, rarely larger, than normal. The affection is unilateral.

Intestinal Motor Function in Infants.—Blagodatny publishes roentgenograms and observations on the time of passage of a test meal in infants.

Revue Française d'Endocrinologie, Paris

1: 281-376 (Sept.) 1923

*The Islands of the Pancreas. E. Laguesse.—p. 281.
Insulin. Benoit.—p. 312.
*Thymocytes and Lymphocytes. A. P. Dustin.—p. 332.

The Islands of the Pancreas.—Laguesse reviews the history of the discovery of the endocrine function of the pancreas, and its present status.

Thymocytes and Lymphocytes.—Dustin found differences between the reactions of lymphocytes and similar cells in the thymus (thymocytes). He therefore considers these two classes of cells as different.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 433-480 (July) 1923

Management of Breech Presentation. L. Demelin.—p. 433.
Pituitary Extracts in Obstetrics. F. Chatillon.—p. 448.
Hypertrophy of Breasts at Puberty. J. P. Tourneux.—p. 454.
Technic of Epidural Anesthesia. Audebert and Bernardbeig.—p. 460.

18: 481-520 (Aug.) 1923

*Congress on Puerperal Fever.—p. 481.
*Congress on Gynecology and Obstetrics.—p. 497.

Congress Transactions.—This issue is devoted to the main addresses presented at the Congress on Puerperal Fever, held at Strasbourg, August 2-3, and the Congress of French-speaking gynecologists and obstetricians, held at Geneva, Aug. 9-11, 1923.

Archivio Italiano di Chirurgia, Bologna

7: 517-608 (Aug.) 1923

The Scientific Works of V. Remedi. G. Bolognesi.—p. 517.
*Case of Cephalocele. F. Rossi.—p. 523.
*Arterial Pressure in Spinal Anesthesia. F. Virgillo.—p. 529.
Traumatic Aneurysm. F. Purpura.—p. 550.
*Ligation of Wisp of Esophagus Wall. M. Bufalini.—p. 567.

Encephalocele.—The tumor in the prematurely born infant was removed at the age of two months. It was an encephalocystocele, and contained 290 c.c. of fluid. Two silk ligatures sloughed out and the child developed strabismus; but these were the only postoperative disturbances. In Reali's compilation of 144 cases of occipital encephalocele, only 7 lived to adult age, and all of Müller's 39 cases died within the first year. Rossi has collected 28 operative cases since 1907, with 17 cured and one improved. Syphilis should always be sought in these cases.

The Blood Pressure During Intraspinal Anesthesia.—Virgillo was unable to detect any connection between the pressure in the spinal fluid and the blood pressure. The latter always declined during intraspinal anesthesia by 10 or 20 mm. of mercury, and in a few cases even by 100 or 130 mm. This drop in blood pressure was not accompanied by general symptoms in his experience with 110 cases. He gives a preliminary subcutaneous injection of 0.25 gm. of caffein two or two and a half hours before. This reduces the systolic and diastolic pressure in from thirty to sixty minutes, but by the end of the second hour they have risen to above normal.

Experimental Ligation of Wisp of Esophagus Wall.—The aim was to induce conditions in rabbits analogous to a diverticulum in man, to permit study of the effects of ligation. Bufalini reports that the outcome does not justify ligation alone in treatment of a diverticulum in the upper esophagus. The outlook is more favorable when the ligature can be applied to the abdominal portion.

Pediatria, Naples

31: 1025-1032 (Oct. 1) 1923

Protozoa.—Estellita Lins here concludes his long and detailed study of the diseases traceable to protozoa. He is assistant at the national public health bacteriologic laboratory, and discusses the subject mainly from the standpoint of the diagnosis and prophylaxis.

Archivos Españoles de Pediatría, Madrid

7: 449-512 (Aug.) 1923

*Prophylaxis of Diphtheria. J. Bravo y Frias et al.—p. 449.
Teaching the Mentally Backward. F. Pereira.—p. 473.

Prophylaxis of Diphtheria.—The Schick reaction was positive in 47.4 per cent. of 675 children in a Madrid orphan asylum in which diphtheria had developed in epidemic form this year. In nineteen days, twenty-five cases had developed, but after prompt toxin-antitoxin treatment of the susceptible children, no further cases developed. Of the 319 passively immunized, 4.7 per cent. presented a cutaneous reaction or rheumatoid pains, and one girl developed a severe anaphylactic shock after injection of only 0.5 c.c. No attempt at isolation was made thereafter, but the epidemic was arrested at once. One child with a negative Schick test developed a febrile sore throat next day, but the absence of tachycardia and of pallor testified against diphtheria, and the child recovered without antitoxin. One child entering the institution too late was overlooked, and was not tested or immunized, and this child promptly developed diphtheria, the last case of the epidemic.

serum was injected around the wound, into the gluteal muscle and intraspinally, thus distributing 60 c.c. Under continued serotherapy recovery was soon complete.

Prensa Médica Argentina, Buenos Aires

10: 305-332 (Sept. 30) 1923

*To Raise Funds for Public Health Work. M. Aberastury.—p. 305.
*Malignant Slow Endocarditis. C. Dominguez and J. J. Puente.—p. 312.
Ankylosis of Hip Joints and Spine. R. Finochietto.—p. 320.

Ways and Means to Raise Funds for Public Health Work.—Aberastury proposes a small additional tax on every form of tobacco, to provide a reserve fund for general public health work.

Slow Malignant Endocarditis.—The onset had been acute with joint disturbances suggesting acute rheumatism and chills, but these symptoms subsided, and the clinical picture became that of septicemia, with heart disease, painful large spleen and glomerular nephritis. A hemolytic streptococcus was cultivated from the blood. The anemia was pronounced, and of an aplastic type. The case ran a six months' course, and necropsy disclosed a fibrinous pericarditis as well as the typical vegetations in the mitral valve, etc.

Revista Española de Medicina y Cirugía, Barcelona

6: 429-492 (Aug.) 1923

Pyelotomy. Manuel Serés.—p. 429.
Influenzal Pneumonia. J. Cuatrecasas Arumi and L. Trias de Bes.—p. 438.
*Malaria in Southern Spain. A. Salvat y Navarro.—p. 441.
Insulin Treatment in France. J. Salvat y Marti.—p. 450.

Malaria in Southern Spain.—Salvat discusses the ways and means proposed by the official committee which has been studying the malaria question in certain provinces.

6: 493-556 (Sept.) 1923

*Compound Fracture of Shafts of Bones. M. Corachán.—p. 493.
The Heart Murmurs. M. Torelló Cendra.—p. 502.
*Diathermy in Gonorrhea in Males. M. Serés.—p. 511.
The New Criteria of Social Hygiene. A. Salvat et al.—p. 515.

Treatment of Compound Fracture of Shafts of Long Bones.—Corachán emphasizes that every compound fracture must be regarded as infected. He regards traction on the bone itself as the best means for extension, and urges care of the general condition as an important aid in treatment of fractures. Antiserums against tetanus and gangrene are often indispensable.

Diathermy in Gonorrhea in the Male.—Serés is convinced that nothing is so effectual as diathermy in dislodging gonococci lurking in the tissues around the urethra, which may maintain the infection for years. His rectal electrode opens like a fan in the rectum, and thus acts on a large area, including the prostate and seminal vesicles. Even at the best, this treatment is not always successful, as some gonococci escape in the deeper tissues. But gonococcal epididymitis and gonococcal urethritis in women can always be cured with diathermy as the anatomic conditions allow a perfect electric bake. When technic is perfected to allow this throughout, gonorrhea will be conquered; it is merely a question of enough electrodes. With recent infection, the gonorrhea is cured in two or three sittings, but acute urethritis in the male once established has generally proved refractory. Only when it has subsided under the usual local measures, does diathermy help to eradicate the infection. With more and larger electrodes he is confident that every acute urethritis can be conquered.

Revista Médica del Rosario, Argentina

13: 233-311 (Aug.) 1923

Artificial Pneumothorax with Creosoted Air. Barralt.—p. 233.
*Hemorrhagic Glioma in Medulla. T. Fracassi and F. R. Ruiz.—p. 245.
Osteomyelitis of the Femur with Myiasis. A. Zeno and A. Boden.—p. 262.
*Congenital Hypertrophy of Limbs. M. Steinsleger.—p. 265.
*Vesical Dystocia. R. B. Borghi.—p. 273.
*Emetin Intoxication. C. Alvarez.—p. 276.
Cultivation of the Gonococcus. R. Barralt.—p. 287.
Spirochetal Bronchitis. Three Cases. A. A. Otaño.—p. 292.

Hemorrhagic Glioma in Medulla.—Fracassi and Ruiz give seven illustrations of a case of a hemorrhagic glioma in the medulla oblongata of a girl of 8. Another child at the same time presented similar symptoms from intracranial hypertension and a focus in the cerebellopontile angle, but the lesion was tuberculous in this case.

Congenital Hypertrophy of One Leg.—In Steinsleger's three cases, the presence of angiomas in the hypertrophied limb and elsewhere sustains the etiologic importance of circulatory disturbances. In one infant, aged 25 days, one thigh measured 28 cm., the other 15; one calf, 24 cm., the other 10. Kondoleon's resection of the aponeurosis seems the most promising treatment in such cases when the monstrosity is compatible with life.

Vesical Dystocia.—A tumor that seemed to be a cyst below the fetal head impeded delivery, and it was punctured through the vagina. About 400 c.c. of blood-stained fluid was withdrawn and the child was delivered with forceps. The tumor proved to have been the bladder, and in a later pregnancy the bladder was found again in the same low position in the side, pushing the uterus over completely to the left side, but it returned to place when the bladder was emptied.

Emetin Intoxication.—In one of Alvarez' three cases, paralysis of the pharynx and difficulty in holding up the head, with extreme asthenia, were the main symptoms of the intoxication. In the others the disturbances were gastro-intestinal. Study of these cases and of the literature seems to indicate that treatment of amebic dysentery should be with subcutaneous injection of 0.10 gm. daily for five days. After a two weeks' pause, repeat with a second series with a smaller dose, never giving more than 1 gm. in one month.

Semana Médica, Buenos Aires

2: 185-240 (Aug. 2) 1923

Zinc in Treatment of Syphilis. N. V. Greco.—p. 185.
*Hookworm in Argentina. T. A. Tonina.—p. 191.
Defective Osteogenesis. M. T. Vallino.—p. 218.
Secondary Anthrax Pleurisy. J. B. Ormaechea.—p. 221.
Morphin and Nitrosomorphin. L. Rossi.—p. 224.
Subtotal Hysterectomy for Dystocia. M. Cella.—p. 226.

Hookworm in Argentina.—Tonina states that the hookworm is common in a large part of Argentina, and is occasionally imported into the regions which have as yet escaped its ravages. Children are infested much more frequently than generally suspected, but the infection may lie latent until early adult age. At the Children's Hospital at Buenos Aires, there have been 36 cases under treatment in fifteen years, and 16 cases of malarial anemia. Bacigalupo uses an extract of hookworms to induce a reaction like the Schick reaction in diphtheria. The responses and the significance seem the same except that the findings in the healthy are sometimes conflicting.

Archiv für Gynäkologie, Berlin

119: 379-580 (Sept. 29) 1923

Inadequate Labor. F. Kermauner.—p. 379.
*Vaccines in Gynecology. Bucura.—p. 384.
Decapitation with Hooked Knife. R. Franz.—p. 396.
*Metabolism and Eclampsia. A. Mahnert.—p. 407.
*Defensive Ferments with Cancer. H. Zacherl.—p. 440.
Chorio-Angioma. A. Santner.—p. 454.
*Thyroid Function in Pregnancy. H. Knaus.—p. 459.
Serologic Diagnosis of Cancer. K. Lundwall.—p. 468.
Mechanics of Labor. A. Mueller.—p. 474.
*Neutralization of Placenta Toxin. T. Hayashi.—p. 505.
*Cholesterol Metabolism. E. Leupold and F. Seisser.—p. 552.
Rare Kind of Ovarian Tumors. E. M. Matsner.—p. 563.

120: 1-340 (Oct. 1) 1923

Transactions of the Eighteenth German Gynecologic Congress.

Vaccines in Gynecology.—Bucura suspects defective technic in treatment in the reported instances of failure of vaccine therapy of gonococcal infection in women. The treatment acts, however, only on closed affections. Open localizations have to be treated locally. He uses vaccines in prophylaxis before operations (including curettements) on infectious processes. Focal reaction following the injection of a vaccine is a warning sign against a premature operation. Deferring the operation allows it to be performed successfully later, if it does not become superfluous after a full course of vaccine treatment. Vaccine therapy should precede the operation in infected carcinomas of the cervix.

Metabolism and Eclampsia.—Mahnert found that carbohydrates, proteins, fats are less regularly and less well oxid-

the vein. The blood with this local excess of waste products induces regional disturbance in metabolism, and this explains the complications of varices, leg ulcer, eczema or anomalies in bones or nails. He extols his method of multiple subcutaneous discission of all the varicose veins, the leg supported perpendicularly.

Cancer of the Leg.—A chronic ulcer had preceded the cancer in all of the eight cases of this kind recorded at the Urban Hospital. All were women but 2; one woman had the right leg amputated for cancer, and, seven years later, the left leg for the same cause. Bruns has collected 368 cases, and says that more than 33 per cent. were cured by an operation. Grosser describes further the case of a girl who developed lupus at the age of 3½. Roentgen treatment and arc light treatment were applied, with the complete cure of the lupus in the face, but four years later roentgen cancer developed in the dorsum of one foot and on both arms. The girl was only 13½ when the roentgen cancer was removed from the first hand. Hesse found in 94 collected cases of roentgen cancer that the intervals between the first roentgen dermatitis and the first suspicion of cancer varied from one to eleven years. The incubation of the dermatitis also ranged from one to eleven years.

"Lattice Lung."—The colored plate shows the changes in the lung after chronic suppuration which justify the term *gitterlunge*. Four cases are reported, all with recovery.

Cholecystitis Without Stones.—Nordmann has operated in 500 cases of gallbladder disease. In 33 of them no trace of gallstones could be discovered although the symptoms had included colic simulating gallstone mischief, and 4 in this group died. These fatal cases emphasize the necessity for calling in the surgeon whenever jaundice persists for two weeks, or with the first attacks of pain, not waiting until irreparable lesions have occurred. The danger of complicating pancreatitis must always be borne in mind: There was acute pancreatitis in 4 of his 18 acute cases, and in 4 of the 15 chronic cases; none died of those with the infectious process restricted to the gallbladder.

Cancer in Accessory Thyroid.—There has been no sign of recurrence during three years since the accessory thyroid with malignant disease was removed from the right side of the neck of a girl aged 18. Five somewhat similar cases are summarized from the records.

The Muscles with Fracture.—Rehn's experimental and clinical experiences confirm the close biologic connection between the bone, the periosteum and the muscles. It is imperative to maintain this physiologic connection, and hence nothing should be injected or be allowed to separate the muscle from the periosteum. This *organgemeinschaft* is an important factor in the healing of fractures.

Operative Treatment of Asthma.—Kümmell explains the basis for his cure of asthma by excluding and paralyzing the nerves that control the constriction of the bronchi. By severing these nerves, the inspiratory dyspnea disappears. In the four patients successfully treated by this means, the asthma of twenty or more years' standing, was cured at once by resection of the cervical sympathetic and its ganglions, the superior and middle and also the stellate, and the vagus fibers in them. He reaches them between the two parts of the sternocleidomastoid. Even if the asthma should return later, the success to date justifies the operation in such severe cases as these he reports.

Archiv für Verdauungskrankheiten, Berlin

32: 1-88 (Sept.) 1923

Liver Function Test with Indigocarmin. M. Einhorn and G. L. Laporte.—p. 1.
Excretion of Foreign Substances in Bile. A. Winkelstein.—p. 7.
Nose and Digestive Apparatus Reflexes. G. Suda.—p. 13.
Pathogenesis of Icterus. G. Felsenreich and O. Satke.—p. 21.
*Carcinoma in Ulcer. T. Plaut.—p. 51.
*Stomach Juice in Gallbladder Disease. A. Ohly.—p. 61.
Pseudotabetic Type of Gastric Ulcer. S. Mintz.—p. 77.
Low Position of Right Breast. F. Schilling.—p. 81.
"Palpation of Abdomen." T. Hausmann.—p. 83.

Carcinoma in Ulcer.—Plaut reviews critically the question of development of cancer in gastric ulcers. He reports five clinical histories, which make it probable that the carcinoma was present for several years before the operation and did not develop in an ulcer. No occult bleeding was noted in some of his cases. The possibility of subsequent malignant degeneration must not be taken as an indication for resection of ulcers. On the other hand, a chronic indurated ulcer is suggestive of malignancy from the beginning, rather than development into a cancer.

Gastric Secretion in Gallbladder Disease.—Ohly examined the gastric juice in 200 patients suffering from cholelithiasis. He found that early uncomplicated cases have hyperacidity, while the chronic cases present usually subacidity or anacidity. The subjective disturbances localized in the stomach, and the amount of mucus present in some patients of this second group seem to indicate an independent chronic gastritis, which might have been the primary affection.

Deutsche Zeitschrift für Chirurgie, Leipzig

182: 1-160 (Sept.) 1923

*Operative Treatment of Wounds of the Heart. E. Hesse.—p. 1.
Operative Treatment of Hallux Valgus. I. Wymer.—p. 27.
*Biology of Elastic Fibers in Transplants. A. Ladwig.—p. 40.
The Appendicitis Question. F. Heinlein.—p. 48.
*Tumors in Large Intestine. B. Tenckhoff.—p. 57.
*Access to Subdiaphragmatic Space. A. Melnikoff.—p. 83.
*Bullet Runs Around the Skull. K. Gentzsch.—p. 152.
*Resection of Phlegmon in Stomach. H. Zoepffel.—p. 158.

Wounds of the Heart.—Hesse analyzes 48 operated cases at the Petrograd city hospital in twenty years. He insists that there is no absolutely certain symptom of injury of the heart. Of 4 gunshot wounds, 50 per cent. proved fatal, and 70.4 per cent. of 44 stab wounds. The bleeding was temporarily arrested by compressing the wound with the fingers and suturing with silk. One case required eleven sutures; the thread tore through in 8 cases, and only 2 of this group were saved. The patients were all hard drinkers, and as drinking men are more subject to heart wounds, this friability of the heart must be borne in mind and the suture reenforced. Otherwise the linear suture becomes a star suture, with danger of bleeding to death. A free flap from the pectoral muscle is preferable for the plastic operation. He used an omentum flap in one case but it slipped aside and became adherent to the internal layer of the pericardium. Internal hemorrhage was responsible for the fatal outcome in 66.6 per cent. of the 48, including 2 cases in which the bleeding was from an overlooked lesion in the lung. Adhesive pericarditis developed after recovery in 4 cases, and the heart became enlarged in 5 of the total 15 cases with recovery.

Biology of Elastic Fibers.—The illustrations are from heterotransplants.

Tumors in Large Intestine.—Tenckhoff discusses in particular a case of fibroplastic appendicitis in a hernial sac.

Access to Subdiaphragmatic Space.—Melnikoff reaches this region through the lower margin of the thorax, his illustrations showing the various modes of access according to the organ concerned.

Contour Bullet Wounds of the Skull.—In the case of suicide described, the bullet traversed the frontal brain from side to side and then traveled around to the occiput inside the skull.

Phlegmon of the Stomach.—The man recovered after resection of an idiopathic circumscribed phlegmon in the greater curvature of the stomach. It had perforated and induced an encapsulated perigastric abscess.

182: 161-288 (Sept.) 1923

*Syphilitic Disease of Joints. A. Poehlmann.—p. 161.
Present Status of Duodenal Intubation. H. Bronner.—p. 180.
*Cholecystitis. L. Blendermann.—p. 200.
*Lingual Thyroid Tumor. M. Rossteuscher.—p. 217.
*Pathology of the Thymus. E. Bircher.—p. 229.
*Spontaneous Correction of Incarcerated Hernia. v. Renner.—p. 268.
*Renal Hemorrhage. W. Peters.—p. 273.
Incision for Access to Nerves in Axilla. L. Drüner.—p. 281.
*Heredity of Hemophilia. F. Lenz.—p. 284.

Syphilitic Disease of Joints.—Poehlmann is convinced that joint syphilis is common, but is usually mistaken for other affections. The Wassermann reaction is often negative with syphilitic disease of bones and joints. It may be negative even in the puncture fluid from the diseased joints in known syphilis. The normal synovia, however, allows the passage into the joints of the substances giving the Wassermann reaction and also of stains and of bile pigments in jaundice. The *inability to differentiate syphilitic joint disease fully* justifies tentative treatment for syphilis in cases of obscure joint disease. The joint fluid findings are tabulated from 100 patients.

Indications for Operative Treatment of Cholecystitis.—Blendermann reports that there were eight deaths in 106 operations for acute cholecystitis, and eighteen deaths in ninety-eight interval operations in Pels Leusden's service in the last four years. He concluded his appeal for early intervention with *Doppelt hilft, wer schnell hilft.*

Lingual Thyroid Tumor.—Rossteuscher adds another case to the 100 on record in which a tumor at the base of the tongue proved to be thyroid tissue. The great danger is that removal of the tumor may deprive the patient of all thyroid tissue. Postoperative myxedema and tetany have been reported in 9 and 22 per cent. of the cases (Asch and Lenzi). In Asch's case the myxedema and tetany gradually improved in time. Only 12 per cent. of the cases of lingual goiter have been found in males.

Pathology of the Thymus.—In this third communication on this subject, Bircher reports experimental research on exophthalmic goiter and on the relations between the thymus and the thyroid. He induced the complete picture of exophthalmic goiter in three dogs by implantation of thymus tissue. Partial results were obtained in three other dogs after implantation of child thymus tissue. These experiences confirm the possibility of thymogenous exophthalmic goiter. He describes further the frequent finding of an enlarged thymus in persons dying from goiter disturbances (not exophthalmic). The diffuse goiter developed in two of the cases after thymectomy.

Self-Healing of Incarcerated Hernia.—The incarcerated hernia had become spontaneously reduced, but persistence of certain symptoms was explained by an intraperitoneal encapsulated fecal abscess, evidently an attempt at spontaneous healing.

Kidney Hemorrhage of Unkown Origin.—Sudden and repeated hemorrhage from the right kidney of a previously healthy woman, aged 64, compelled nephrectomy. But nothing to explain the hemorrhage could be found even with the microscope. In a second case the kidney was merely decapsulated and there has been no further disturbance.

Heredity of Hemophilia.—Lenz urges surgeons to investigate the family tree of every patient who displays a tendency to bleed excessively. Data in regard to hemophilic grandchildren would settle the question whether spermatozoa with the hemophilic taint always die prematurely or not. Instances are being reported now of bleeder women, with both father and son bleeders. The question needs further light, and this the surgeons can provide by search for bleeding grandchildren.

Jahrbuch für Kinderheilkunde, Berlin

102: 321-380 (Aug.) 1923

*Tuberculosis in Children. A. Czerny and H. Eliasberg.—p. 321.
Registration of Heart Sounds in Children. A. Hotz.—p. 337.
Anemia from Goat's Milk. E. Brouwer.—p. 357.

Treatment of Severe Tuberculosis in Children.—Czerny and Eliasberg consider artificial pneumothorax the greatest progress in treatment of pulmonary tuberculosis. This is especially true in children, in whom the process is comparatively frequently unilateral. They maintain the pneumothorax for at least two years. They had tried to influence the cachexia of tuberculous children by daily injections of horse serum. On Uhlenhuth's advice, they tried the serum from animals which had been injected with increasing amounts of tubercle bacilli. Although no antibodies except a weak amboceptor were found in such serums, the results in the children seemed better than with other methods. They injected daily from 0.5 to 2 c.c. of such beef serum. Edema which occurred locally in some of the children could be prevented by diluting the serum with an equal amount of normal sodium chlorid solution.

Medizinische Klinik, Berlin

19: 1279-1318 (Sept. 23-30) 1923

Treatment of Syphilis with Bismuth. J. Citron.—p. 1279.
Tuberculosis in Children. K. Dietl.—p. 1284.
*Multiple Sclerosis. R. Fetscher.—p. 1286.
*Intracutaneous Smallpox Vaccination. A. Singer.—p. 1288.
*Diagnosis of Uterine Cancer. A. Adelheim.—p. 1290. Idem. O. Gerich.—p. 1292.
Bilateral Ureter Cysts. J. J. Stutzin and Bolle.—p. 1294.
Chloramin Disinfection of Sputum. K. W. Jötten.—p. 1297.
Pneumothorax Treatment of Pneumonia. P. Schottky.—p. 1298.
Ovarian Dermoid. B. Lammers.—p. 1298.
Stenosis of Left Auricle. W. H. Chron.—p. 1299.
*Stimulating Action of Salt. A. Hauer.—p. 1300.
Professional Blood Donors. K. Brandenburg.—p. 1301.
Varices and Leg Ulcers. E. Clasen.—p. 1302.
Recent Literature on Hygiene. H. Ziemann.—p. 1306.
Recent Literature on Disease of Heart and Vessels. Edens.—p. 1309.

Multiple Sclerosis.—Fetscher surveys the present status of the etiology of multiple sclerosis. Kohn and Steiner's *Spirochaeta argentinensis* seems to be the probable causal agent. It is not impossible that the disease is transmitted by insects, especially ticks. Prolonged treatment with small doses of silver arsphenamin has given promising results in a few cases, conflicting in others.

Intracutaneous Smallpox Vaccination.—Singer confirms the advantages of Leiner's method of smallpox vaccination. He injected 0.1 c.c. of a 1:40 dilution of smallpox lymph intracutaneously. The reaction is milder than with the usual cutaneous method. Fever is rare and of short duration. There are no scars after this method, which is especially important in girls.

Diagnosis of Uterine Cancer.—Adelheim discusses the characteristic signs of carcinoma in scrapings from the uterus. Great care must be taken in examination of particles from a uterus which had been treated with caustics, because of the subsequent vigorous new formation of epithelium.

Early Diagnosis of Uterine Cancer.—Gerich quotes Winter's statement that physicians are responsible for 21.5 per cent. of the diagnoses of cancer that are made too late. Bleeding after coitus, bleeding after the menopause, and bleeding during urination and defecation are important suspicious symptoms. Increased menstrual flow and hypersecretion are suspicious. He reports several cases in which the microscopic diagnosis of cancer was made, although the clinical and anamnestic findings furnished only a slight suspicion.

Shock Action on the Blood from Hypertonic Saline Solution.—Hauer injected in the morning 10 c.c. of a 10 per cent. solution of sodium chlorid intravenously, and observed the effects on the blood. The lymphocyte count was frequently lowered almost immediately, and increased after a quarter of an hour. In one case, five minutes after the injection, there were four times as many lymphocytes as before, and a little over one half of the original figure later. The neutrophils were almost always changed: younger forms appeared and lasted for several hours. Cachectic patients had only a few younger forms.

Zeitschrift für Urologie, Leipzig

17: 513-592, 1923

Hemorrhage from One Kidney. H. Schranz.—p. 513.
Physiologic Import of Uric Acid. Armbruster.—p. 516.
Etiology of Pyelitis. A. Matusovszky.—p. 517.
*Chronic Contraction of Neck of Bladder. H. Rubritius.—p. 522.
Sources of Error in Roentgenography of Ureter Calculi. H. Hohlweg.—p. 533.
Calculus in Urethral Diverticulum. H. Boeminghaus.—p. 535.
*Surgical Insufficiency of the Kidneys. E. Joseph.—p. 537.
Calculi in the Ureter. A. Zaky.—p. 541.
Casts and Albumin in Urine in Surgical Affections of Kidneys. R. Rinaldi.—p. 561.

Chronic Contraction of Neck of Bladder.—Rubritius reports a case of apparently hereditary hypertonia of the sphincter of the bladder. This condition causes retention of urine in some cases of beginning tabes and after spinal injuries.

Surgical Insufficiency of the Kidneys.—Joseph places more reliance on the anatomic findings in cases of pyonephrosis than on functional tests. If the pelvis and calices of the other kidney, as shown by pyelography, are approximately normal, he operates even if the indigocarmin test is not satisfactory. On the other hand, elderly patients with hypertrophied prostates may die of uremia after the operation, even when the elimination of the stain had been good.

Zentralblatt für Chirurgie, Leipzig

50: 1433-1464 (Sept. 22) 1923

Resection of Clavicle Improves Function of Shoulder After Arthrodesis. M. Kappis.—p. 1433.
*Experiences with Sympathectomy. H. Kümmell, Jr.—p. 1434.
*Spontaneous Gangrene. M. Jegorov.—p. 1439.
Operative Results of Cryptorchidism. R. Paschen.—p. 1440.
Color and Growth of Hair in Diagnosis of Cancer. Zöllner.—p. 1442.

Fifty-Two Sympathectomies.—Kümmell has performed periarterial sympathectomy forty-four times in thirty-four, and resection of the cervical sympathetic ganglion, in eight cases. The operation was successful in many cases, and in no case proved harmful. Sympathectomy usually entailed a lowering of the blood pressure, a more feeble pulse and a drop in the skin temperature, which after a few hours or a few days were followed by the opposite conditions. The circulation in the capillaries seemed to improve, as was shown by microscopic examinations. Kümmel agrees with Brüning that hyperemia is one of the main factors in the favorable effect of sympathectomy in vasomotor disturbances in the extremities. But that other sympathetic functions take part in the results is shown by remission of pain and also by the remarkable fact that following unilateral sympathectomy an effect on the opposite side was observable in some cases. In trophic ulcer the results were especially satisfactory.

Changes in the Thyroid Gland in "Spontaneous" Gangrene of the Extremities.—Clinical observations and laboratory researches on a series of cases of "spontaneous gangrene" (blood pressure measurements, application of the Eppinger and Hess tests for vagotonia and sympathicotonia, estimation of the epinephrin content of the blood by the Krawkov method) have convinced Jegorov that in the majority of cases no sympathicotonia or epinephrinemia can be proved. Vascular spasms in the arteries of the foot, however, could be distinctly observed in many cases. Jegorov concluded that in most cases there was weakness of the vasodilators (vagus asthenia). To confirm this assumption, he made a biopsy of the thyroid gland. His conjectures were confirmed. The gland cells were found in the form of slender, spindle-like formations. Excess of colloid was found. Jegorov asserts that biopsy of the thyroid is a simple method of examination and that reduced functioning of the thyroid in many forms of "spontaneous gangrene" is established.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1070-1172 (Sept. 15) 1923

*Nature of Diabetes. H. A. Lubbers.—p. 1070.
*Familial Amaurotic Idiocy. G. P. Frets and J. F. A. Overbosch.—p. 1091.
*Peritonitis with Cirrhosis of Liver. F. van Oppen.—p. 1112.

Nature of Diabetes.—Lubbers, a specialist in gastro-intestinal disease, presents evidence that, in certain cases of diabetes, increasing the protein proportion of the food improved the tolerance for carbohydrate. He discusses the reasons for this paradoxic behavior, giving charts from several concrete examples, and reiterates that in every case there is a certain optimal proportion of protein with which the assimilation of carbohydrates proceeds most favorably. This suggests that the carbohydrates are assimilated or rejected according to the group of side-chains which prevails, the carbohydrates or the zymases. The carbohydrates exert an amboceptor function, allowing the zymase opportunity to split the diacetic acid, and thus giving it a chance to fasten on the protoplasm. He explains the cause of diabetes on this basis, and reiterates that disturbance in the functioning of the pancreas is not responsible for all cases of diabetes; other endocrine glands may be involved.

Amaurotic Family Idiocy.—The symptoms developed in the three brothers at the age of 3, and proved fatal in three years in all. The family was not Jewish, and the child born before and the two born since seem to be normal. Seventeen illustrations of the microscopic findings class the cases as of the Spielmeyer-Vogt early juvenile type, with severe pathologic changes in the cerebellum.

Chronic Arsenic Poisoning.—Van Oppen ascribes the remarkable findings at necropsy to the medicine the girl had been taking for asthma for about a year. The clinical course had been that of adhesive peritonitis with chronic partial ileus, bronzing, and cirrhosis of the liver. No signs of the anticipated tuberculosis were found at necropsy.

2: 1293-1384 (Sept. 29) 1923

Eijkman and the New Science of Nutrition. D. J. Hulshoff Pol.—p. 1294.
Development of Sinus Durae Matris. C. van Gelderen.—p. 1300.
Estimation of the Flocculation Reactions. M. van Riemsdijk.—p. 1309.
*Agglutination of Proteus in Paratyphoid. G. Kapsenberg.—p. 1314.
*Disturbance in Circulation in Deafness. W. P. Meyjes.—p. 1320.

Positive Weil-Felix Reaction in Paratyphoid.—Kapsenberg reports a case of paratyphoid B in which extreme agglutination of *Proteus X 19* had misled the diagnosis at first. This possibility of paratyphoid should be borne in mind in applying the Weil-Felix test for typhus.

Treatment of Deafness and Dizziness.—Meyjes quotes Schwerdtfeger's recent success in curing severe symptoms following prolapse of the brain after a cerebral abscess by fitting the man with a prosthesis to correct the prolapse. There was no return of the dizziness, tinnitus, headache, aphasia and nystagmus. This convinced him that these symptoms are due to derangement of the circulation in the region. This assumption was confirmed by pressure on the veins and arteries in the neck in this and other cases. Meyjes expatiates on the importance of this for treatment of these symptoms, and also of certain forms of deafness by means to modify the circulation.

Svenska Läkaresällskapets Handlingar, Stockholm

49: 157-208 (Sept. 30) 1923

*Research on the Vitreous Body. L. Cronstedt.—p. 157.
Place of Origin of the Glaucoma Colored Ring. J. W. Nordenson.—p. 206.

The Bactericidal Property of the Normal Vitreous Body.—Cronstedt found the vitreous body in man, horses, cattle and rabbits an excellent culture medium for certain bacteria, but for others it has a bacteriolytic action, and this can be activated. He explains how this can be done, and how it can be utilized in treatment by direct injection into the vitreous body.

Ugeskrift for Læger, Copenhagen

85: 717-740 (Oct. 11) 1923

Improved Inhalation Apparatus. C. Engelbreth.—p. 717.
*Arsphenamin Treatment of Infants. G. Gelbjerg-Hansen.—p. 720.

Intravenous Arsphenamin Treatment of Young Infants.—Gelbjerg-Hansen states that in the last five years there have been 132 children with congenital syphilis at the Bergh Hospital, and nearly all were given intravenous neo-arsphenamin treatment. The effect was excellent. In the 19 under 4 months of age, the Wassermann reaction became completely negative in 16 and nearly negative in 3. The child that has been treated the longest is now 3 years old, and has been given twenty-nine injections, to a total of 6.7 gm., and is now sturdy and strong. The children seem to develop exceptionally well; possibly from the tonic effect of the arsenic. Nine of the children died within ten days of birth, and 9 have succumbed to intercurrent disease, and one to congenital heart disease. The total mortality was 23 cases, or 17 per cent. His experience indicates that infants can bear arsenicals even better than adults. The dose of 0.075 gm. of neo-arsphenamin under the age of 3 months was increased to 0.09 from 3 to 6 and 0.12 from 6 to 12 months. After the age of 8, the dose was 0.30 and for older children 0.45 gm. There were no mishaps in over 376 injections. A vein at the elbow or neck was generally selected, with the superior sagittal sinus as the last resort. In their first attempts to use the sinus, partial necrosis of the frontal lobe and purulent meningitis developed in 2 cases but there have been no complications in any of the numerous cases since. The arsenical treatment was supplemented with a course of inunctions in the young infants.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 81, NO. 26 CHICAGO, ILLINOIS DECEMBER 29, 1923

DIAGNOSIS AND TREATMENT OF HEAD INJURIES *

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I am presenting this subject again when so much has already been written about it because I find, after talking with others and noting what others have said, that there still remains the greatest confusion both as regards the classification and the treatment of this very frequent injury. In presenting this subject to my students I have for years eliminated as far as possible many of the theoretical considerations in order to bring out as clearly as possible a concrete, practical, simple and, I believe, logical method of dealing with these cases. The plan here outlined is the one I have followed for the last ten years; and though my series is not very large, the cases have been studied with a good deal of care and with due consideration for the methods that from time to time have been suggested by others.

Some authorities have laid great stress on the mechanism by which skull fractures are produced and on the type of fracture, whether linear, stellate, vault or basal. Though this is unquestionably of great academic interest, I have never been able to see why determining this point was of much practical value. I see no way in which it helps materially one's treatment of the patient. Treatment must be directed to the disturbance within the intracranial cavity, and classifying the type of fracture does not indicate the nature of the intracranial injury. Besides, it happens not infrequently that an intracranial injury occurs without any fracture of the skull.

The injury to the brain, both temporary and permanent, must be our principal, really our sole, consideration. There is much still to be learned on several points: namely, why certain individuals have a permanent cerebral defect after an apparently slight injury, while others with a huge cerebral lesion show no neurologic disturbance at all; why certain individuals develop epilepsy and countless others do not is equally puzzling, but I do not propose to go into those questions today.

THREE TYPES OF INJURY

There are three important questions to be determined in a head injury as regards the injury to the bone:

1. Is there a compound fracture?
2. Is there a depressed fracture?
3. Is there a simple fracture without depression?

Any one of these three types of fractures may have associated with it some intracranial injury, a hemorrhage either rapid or slow, or a contusion and laceration of the brain with edema of the brain. These may give rise to symptoms of compression, symptoms of irritation or paralysis, or so-called concussion. Symptoms of compression may, however, occur even without any injury to the skull, and this is the point we must never lose sight of, namely, that the intracranial injury is our chief concern.

The symptoms and signs arising from these various types of injury may be divided into the general and focal ones. Such signs may occur with any type of intracranial injury. Therefore, our first procedure should be to identify all these signs and symptoms, evaluate them, and try to determine the nature of the pathologic process and then decide on the treatment. To enumerate all of these symptoms would take too long and be perhaps confusing. Some are more important than others. Some are particularly valuable to enable us to decide what the nature of the lesion is and what to do for it. The most important general symptoms are changes in the blood pressure, the depth of unconsciousness, the pulse rate, the appearance of the eye grounds, and the character of the respirations. Headache, vomiting, cranial nerve palsies and irregularities of the pupils are far less important symptoms. The most important focal symptoms are convulsions, general or focal, symptoms of paralysis and abnormal reflexes. Any of these symptoms may be produced by hemorrhage, by contusion and laceration or by cerebral edema, and all intracranial injuries, I believe, fall into one of these three groups. Any one of these pathologic processes may give rise also to symptoms of compression. In the vast majority of cases our treatment is directed to relieve signs of compression, and but rarely does any treatment have to be instituted for the fracture of the skull itself. Compound fractures and depressed fractures call for operative interference even if there are no symptoms of intracranial injury.

All patients with compound fractures and all with depressed fractures, regardless of symptoms, should be operated on as soon as they have recovered from primary shock. The compound fractures should have a radical débridement, and the soft tissues should be sewed up without any drainage or, at most, a small drain of rubber tissue. The depressed fractures should be elevated even if they have no symptoms, since the local pressure of a depressed fragment may produce permanent damage to the brain. It is these patients, when not operated on, that seem very prone to develop epilepsy.

About these two conditions I feel quite certain every one is in accord. Nor can there be any difference of opinion in regard to the treatment of cases of middle meningeal h[illegible] a pro[illegible]hage

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* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

from some other vessel. The classical picture of the typical case is too well known to need more than passing mention: the short period of unconsciousness, followed by recovery, and then succeeded by a more or less rapidly spreading unilateral paralysis with a lapse into unconsciousness, and all this accompanied by a progressive rise of blood pressure. There are two points, however, that I want to emphasize in passing. The first is that the rise in blood pressure may develop so rapidly that it can be detected only by frequent blood pressure readings. In my service it is a routine to record it every fifteen minutes. The second point is that an intracranial hemorrhage may occur without any appreciable change in blood pressure, owing to the fact that the vasomotor centers are too exhausted to react to the stimulus.

CASES THAT CONSTITUTE THE REAL PROBLEM

The large group of cases in which there are none of the three conditions just mentioned, hemorrhage, depressed fracture or compound fracture, constitutes the real problem and includes by far the bulk of all cases of head injury. These patients have contused and lacerated brains of varying intensity, from the type that merely has numerous minute punctate hemorrhages and a brain that is otherwise in good condition and not greatly disorganized, to the type of the brain that is lacerated, pulpified and fearfully traumatized.

All such contused and lacerated brains, whether the injury is severe or slight, have one feature in common: they readily and rapidly become edematous, and this edema, if marked enough, may cause an increase of intracranial pressure and symptoms of compression. This pressure does not develop so rapidly that changes in blood pressure are noted as in a hemorrhage case, for it is only rapidly increasing pressure that produces this phenomenon. At times these cases show moderate ophthalmoscopic changes; there is edema of the edges of the disk and tortuosity of the vessels. These cases show all grades of cerebral involvement, from slight mental disturbance to deep coma. They may show pathologic reflexes on one or both sides; there may be irregularity of the pupils; there may be an ocular palsy, especially of the sixth nerve; but the outstanding features of these cases are that they show no signs of a focal cerebral lesion, but all the symptoms are general signs of increased intracranial pressure. The outstanding ones are slow pulse, irregular respirations, or, in very severe cases, Cheyne-Stokes respirations, semiconsciousness or deep unconsciousness, vomiting, and bleeding from the nose, ears or throat. Occasionally there may be great restlessness, and at times jacksonian convulsions or partial or complete unilateral paralysis.

When there are focal convulsions, an exploration is indicated; and in such a case and only in such a case do I believe that a bone flap should be turned down so that the blood clots and débris that are irritating the cortex can be removed. But those other cases in which there are no focal signs are our principal concern. We must relieve the compression symptoms. There are three possible ways of doing this: (1) getting rid of the edema; (2) giving the swollen brain more room by removing cerebrospinal fluid every few hours or as quickly as it reforms, or (3) giving the brain permanently more room so that during the weeks after the accident, until the edema has disappeared, it has more room, thereby removing pressure from the medulla. Surgeons differ as to which of these methods is most desirable and most effective.

For getting rid of the edema, saturated salt solution, either intravenously or in the gastro-intestinal tract, has been used. The method was first suggested by Weed in some experimental work. Undoubtedly it shrinks the brain tremendously, and the shrinkage is due to removal of fluid from the ventricles and from the edematous tissue; but in my experience it does not seem to work well on the brain in a closed skull, though others seem to have had different experiences, notably Dowman of Atlanta. My former assistant, Dr. George W. Belcher, and I could not convince ourselves that it had much effect. Dowman reports that he gets results by purging the patients and thus withdrawing fluid. I have seen so little benefit from saturated salt solution in fracture cases that I have given up using it in these cases.

The second method of taking care of the increased pressure due to edema is by lumbar puncture. Lately this has been again urged by Jackson and others. Lumbar puncture is very generally used, both for treatment and as a diagnostic method in head injuries. I do not approve of or employ lumbar puncture in such cases either for purposes of diagnosis or treatment, for I have seen the same thing happen after lumbar puncture in head injuries that has happened so frequently from lumbar puncture in brain tumor cases—sudden death. I have seen at least two such deaths in fracture cases myself, and since that time lumbar puncture has no longer been carried out in my clinic in traumatic cases.

This question of the danger of spinal puncture is one that should be freely discussed and made clear. Many of us dislike or neglect to report unfavorable results. I have never yet spoken of this question in any gathering that a number of men have not cited such deaths, and I doubt not that there are a number in this audience who have had similar experiences. I do not feel the need of spinal puncture for diagnostic purposes because I believe it is perfectly possible to decide how to deal with a given case without knowing the character or pressure of the spinal fluid. I have no rule of thumb; but in those cases in which the patient is unconscious or remains semiconscious and has a slow pulse, I usually do a subtemporal decompression. My purpose is twofold: first of all, to relieve the immediate compression symptoms, and, secondly, to prevent late complications, particularly persistent headache and mental symptoms, which I believe may be produced by the prolonged pressure on certain portions of the brain. In other words, I make a permanent opening in the skull to give the brain more room during the period in which it is swollen and edematous.

I do not believe that a carefully performed decompression ever adds to the mortality in this condition, but certain precautions are very important. Frequently the intracranial pressure is so great that if the dura is opened without the pressure first being reduced, the cortex would protrude so rapidly that it would rupture and cause most serious damage. The pressure is readily reduced by withdrawing cerebrospinal fluid from the ventricle. This withdrawal of ventricular fluid is an essential part of every decompression operation when the dura is under tension. It sometimes happens that, when the dura is nicked for the purpose of doing a ventricle puncture, a considerable amount of blood-stained fluid under great pressure escapes, and with this the intracranial pressure is reduced. This fluid is in the subdural space, and just where it comes from and what its character is is not certain. I have thought that it might be cerebrospinal fluid which has escaped into the subdural space through rupture of the pia arachnoid. Dr. Naffziger has drawn particular attention to the cases in which this collection of fluid is present; and they are particularly favorable cases for operation. I do not know whether there is any way of recognizing these cases before operation; I have never been able to discover characteristic features.

CONTRECOUP INJURIES AND CONCUSSION

There are two conditions that must be mentioned in any consideration of head injuries: (1) contrecoup injuries and (2) concussion. It is well known that if a blow is struck on one side of the skull and the bone does not give way at that point, the injury of the brain is found at a point opposite to the point of impact. If operation is needed in such a case, that is, if there are signs of compression or hemorrhage, the site of operation should be determined not by the location of the fracture, if there is one, but by the neurologic signs; and these will indicate that the cerebral injury is on the side opposite the impact. Lastly, regarding concussion: I have avoided using this term throughout this paper because I feel it is a misleading and undesirable term. There is no group of symptoms that is characteristic of concussion and that can be differentiated from the symptoms produced by a moderate contusion and laceration. If the cases cannot be distinguished clinically, it is quite impossible to ascribe any pathology to the condition. It would simplify our consideration of the subject if all cases hitherto grouped under this heading were classed with the contusions and lacerations. Whether there is much brain destruction or only a few punctate hemorrhages makes no difference; it still is a contusion and laceration. The only cases I am willing to call concussion are those in which the patients have been struck on the head, are stunned or have a brief period of unconsciousness, have a slightly slowed pulse for an hour or two and some headache, and then go back to work and never have any further trouble.

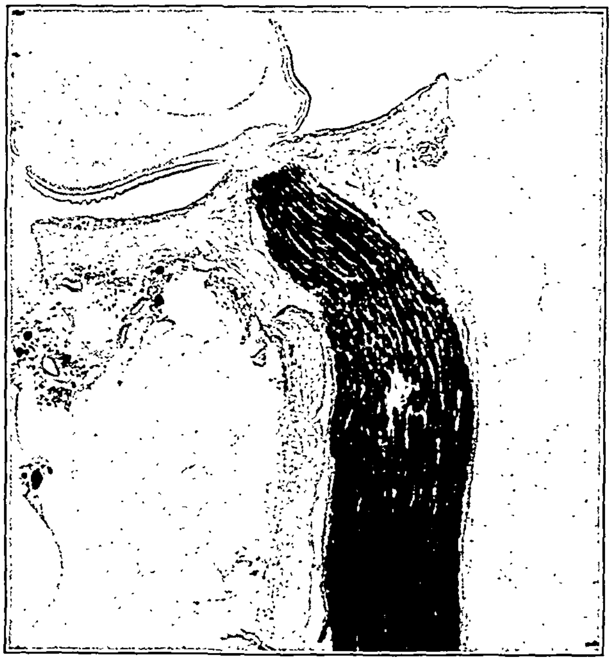

Fig. 1.—Section through optic nerve and disk (Weigert-Pal preparation); slightly reduced from a photomicrograph with a magnification of 8 diameters.

CONCLUSION

I should like to emphasize one point particularly, namely, that in dealing with injuries to the head we must differentiate sharply between those cases that require treatment for the fractured skull, namely, compound and depressed fractures, and those in which there are intracranial injuries. The treatment of cases of intracranial injury resolves itself practically to the control or relief of compression symptoms.

BRAIN ABSCESS

CLINICAL AND OPERATIVE DATA *

CHARLES BAGLEY, Jr., M.D.

BALTIMORE

For ten years I have been accumulating data in the form of clinical notes and pathologic specimens of brain abscess, and for the past year have studied this material, gleaning facts and recording personal experiences with the hope of combining forces with other workers toward the finding of a common ground for clinicians in the management of these troublesome cases. The serious state of patients when presented for treatment, the difficulty in making decisions concerning operations, and the high mortality rate in reported cases all indicate a lack of precision which we should endeavor to overcome. Gradually increasing interest in surgical conditions of the nervous system has exerted a good influence, but a review of the literature and a survey of one's clinical experience force the admission that our cures of brain abscess today, like the cures twenty-five years ago, are more or less accidental, and in many cases merely a question of luck. In spite of the fact that the cerebral function may be entirely restored and there need be no recurrence of the lesion, that ever present phantom in tumor cases, this malady is feared, and patient and physician often abandon hope at the first sign of involvement. The present dread of the condition seems justified when we consider that the mortality rate in a series published in 1922 was 75 per cent.; it will be remembered that Sir William McEwen, in 1893, reported eighteen recoveries in nineteen patients operated on. I feel that the recovery in McEwen's series will not be equaled until our methods of diagnosis rid the surgeon of the necessity of performing eleventh hour operations in obviously hopeless cases.

"Do you believe the diagnosis could have been made earlier?" is a usual question after all operations for brain abscess. The physician then looking backward is anxious to determine whether he has deprived the patient of a chance for recovery. In the light of operative findings, one is always forced to acknowledge that more attention should have been paid to certain symptoms observed during the few days or even weeks before admission to the hospital. It is often difficult, of course, to differentiate between symptoms of the primary inflammation and those due to

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* Read before the joint meeting of
and Abdominal, and the Section on
the Seventy-Fourth Annual Session of
San Francisco; June, 1923.

abscess. Fear of the presence of an abscess frequently prevents the physician from facing the extremely unpleasant situation until the appearance of grave symptoms. A headache after mastoid operation, for instance, is discounted until it becomes very troublesome and associated with other evidence of intracranial involvement. The period between initial and advanced symptoms varies from a few days to several months, but in either case the operative procedure is likely to be postponed until demanded by the patient's condition.

In looking over our histories with abscesses secondary to otitis media, mastoid and accessory nasal sinus inflammation, we find that the shortest interval between the initial symptom and the drainage of the abscess was three weeks.

Case 1.—R. W., a girl, aged 15 years, had left otitis media beginning Dec. 1, 1913. The left mastoid was drained, December 9. The condition was favorable until Jan. 7, 1914, when she had frontal and temporal headache, vomiting, and very severe dizziness and diplopia, and these symptoms were still present, January 27. The patient was stupid, and her general physical condition poor. There were ataxia of the left upper and lower extremity, and bilateral choked disk. There was no nystagmus. The temperature and pulse rate were slightly above normal. A left cerebellar hemisphere abscess was drained, January 28, but the patient died suddenly, forty-eight hours later. The course was short, but it is probable that there was a circumscribed collection of pus in the left hemisphere several days before operation, so that nothing was gained in waiting. If serious signs of compression had not appeared, the operative procedure would have been further postponed.

Case 2.—E. B., a girl, aged 8 years, had severe pain in the left ear, Jan. 11, 1914. A paracentesis was done, January 21, but as the symptoms continued, the left mastoid was opened, January 24. She had a slight chill with a sharp rise of temperature to 102.2 F., January 30. The temperature gradually returned to normal three days later, and was subnormal, February 8, at which time vomiting commenced; dizziness was first complained of, February 10. Examination by a neurologist on this date showed normal disks and coarse nystagmus to the left; functions attributed to the temporal, occipital and parietal regions were not disturbed; adiadokokinesis and some ataxia were present on the left. The diagnosis of left cerebellar abscess was made but was not concurred in by the physician in charge, as he considered the condition due to inflammatory involvement of the labyrinth. Examination, March 15, revealed marked choking of the disk, leaving no doubt about the diagnosis. The advice was not accepted, however, until the condition became very serious, March 30, when the abscess, due to staphylococci, was drained; the patient made a complete recovery.

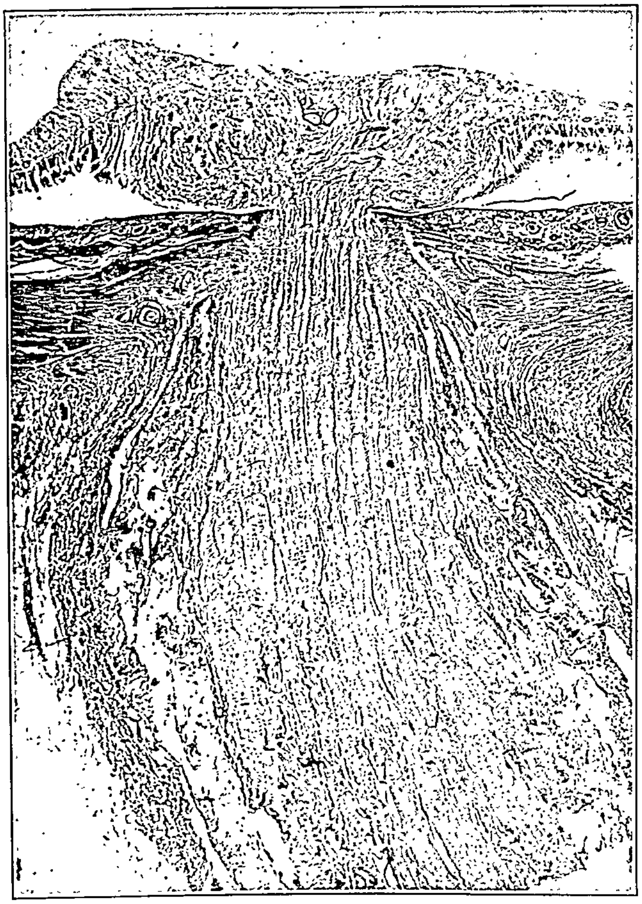

Fig. 2.—Section through optic nerve and disk (hematoxylin and eosin preparation); reduced from a photomicrograph with a magnification of 20 diameters.

This patient's life was spared because the organism producing the infection permitted delay between the time when a positive diagnosis of abscess was possible and the undertaking of the proper surgical procedure.

Abscesses must frequently be differentiated from neoplasms, encephalitis and meningitis. The history of a primary inflammation in the adjacent cavities or pulmonary suppuration is valuable, but I have been misled in tumor cases to believe that there was an abscess because of the presence of such suppuration. The rapidity of the progress of symptoms, usually greater in cases of abscess, is helpful, but this rule is not entirely trustworthy, as tumors may produce symptoms over a period quite as brief as that sometimes seen in abscess.

Case 3.—E. T. E., a man, aged 43, was seized March 16, 1915, with severe headache in the occipital region, a few weeks after a severe attack of grip. After the first headache he was free from pain for several days, when it recurred, accompanied by vomiting, dizziness, disturbance of speech, confusion of ideas, difficulty in walking, choked disk and diplopia, and within six weeks from the sudden onset of symptoms his state was very grave. Because of the attack of grip and rapid development of symptoms, the disturbance was believed to be inflammatory. Aspiration for abscess was negative; a decompression for relief of pressure was done, after which progress was very slow and a diagnosis of tumor was made. This patient died a little less than eight months after the beginning of symptoms, and the necropsy showed an extensive infiltrating glioma, involving the right frontal and temporal lobes, and basal ganglions on both sides.

The difficulty of differentiating encephalitis from brain abscess has been strongly encountered in some recent cases.

Case 4.—R. F., a man, aged 22, during the course of a mild attack of influenza suffered with severe headache which necessitated his leaving the train on which he had been traveling for twelve hours. The following day he resumed his journey, but the headache continued and was always very severe, and fourteen days later there developed weakness of the left face, weakness of the left leg, jerking of the muscles of the left shoulder and fingers of the left hand, and very slight postcervical rigidity. The reflexes were exaggerated on both sides, with ankle clonus, positive Babinski and suggestive Kernig sign on the left side; all were negative on the right. Hyperesthesia was very troublesome over the left side of the head, neck, left upper extremity and two fingers of the left hand. The ophthalmoscopic examination was negative. In the early part of the course, the pulse rate was as low as 52 a minute, and the temperature was subnormal at times. The leukocytes were 26,000, with 90 per cent. polymorphonuclears. The cerebrospinal fluid contained 14 cells per cubic millimeter.

isfactory as concerned the abscess, and the wound healed in the usual time. One week after operation, the boy had a very severe convulsive seizure followed for some days by marked disturbance of speech; two months later there was a second but less severe convulsion, followed by slight aphasia. During the winter months his condition caused no concern, and slight disturbances, such as dizziness when stooping, were attributed to his previous illness. Early in March, 1923, he had severe headache definitely localized in the left frontal and anterior temporal regions, followed by evidence of increased intracranial pressure. Because of clouding of the left frontal sinus, the diagnosis was that of left frontal lobe abscess. A neurologic examination was made, March 25, at which time the child was restless and complained of left frontal headache so severe that at times it caused him to cry out. During intervals of pain he was cooperative, making possible a complete nurologic examination. The most important facts were high grade choked disk, slight right facial weakness, and right homonymous hemianopia. The making of perimetric charts was not possible, but by repeated examination with various objects, including a coin, the presence of the visual defect was definitely established. This alone led to the proper localization of the abscess, which was immediately drained. Forty-eight hours later there was complete relief of all signs and symptoms except hemianopia, which disappeared in three weeks.

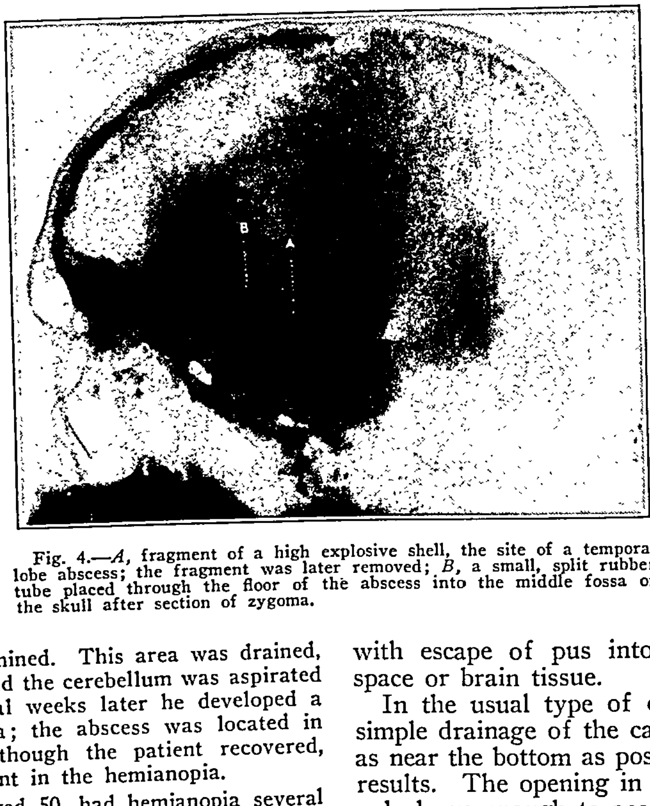

Fig. 4.—*A*, fragment of a high explosive shell, the site of a temporal lobe abscess; the fragment was later removed; *B*, a small, split rubber tube placed through the floor of the abscess into the middle fossa of the skull after section of zygoma.

Hemianopia was also the sole sign of localization value in Case 9, in which the original diagnosis was cerebellar abscess.

Case 9.—R. L., a man, aged 27, entered the hospital five weeks after a sudden attack of dizziness which had continued so troublesome that it was almost impossible for him to sit up. Headache was very severe, the gait unsteady, and high grade choked disks were rapidly increasing. There was some incoordination on the right. In the left occipital region there was an area of bone necrosis, the cause of which was not determined. This area was drained, but the symptoms continued and the cerebellum was aspirated with negative results. Several weeks later he developed a right homonymous hemianopia; the abscess was located in the right occipital lobe. Although the patient recovered, there has been no improvement in the hemianopia.

Case 10.—C. H., a man, aged 50, had hemianopia several weeks before other symptoms were observed. This was discovered while the patient with his family was on a trip through the Gettysburg battlefield, when he found that he was not seeing objects to the right of him. No attention was paid to the defect, and just before admission to the hospital there was a sudden increase of symptoms, and the patient died of meningitis. Though a necropsy was not permitted, the clinical course suggested a slowly increasing abscess, which ruptured into the ventricle, causing meningitis.

The ophthalmoscopic examination has been helpful in all cases of long duration, and in Case 1, in which the entire course was only three weeks, there was well advanced bilateral choked disk. The early appearance of choking in this case was perhaps largely due to internal hydrocephalus produced by the cerebellar abscess. In some cases of temporal lobe abscess there was no choking when the period of involvement was even longer than three weeks. An extreme degree of choking is shown in Figure 1, a photograph of the nerve head in the case of a young woman (L. F.) who had a frontal lobe abscess with definite symptoms for a period of two months. The opposite is seen in Figure 2, L. H., who had symptoms for a period of a month, when a convulsive seizure occurred and he suddenly died. Necropsy revealed a very large abscess in the left parietal lobe.

The wide difference of opinion as to method in evacuating a brain abscess indicates the chaotic state of surgical procedure directed toward the relief of the condition. There is, of course, no one method applicable to all types of cases, but it is not likely that the chosen mode in a given type should vary from a small trephine opening to a large bone flap plus ventricular and lumbar punctures. After a study of the pathologic specimens[3] and a full appreciation of the effort of the brain to surround the invading infection by a limiting membrane, I developed a great respect for the abscess wall and determined to avoid any interference with its function. Operative procedures, therefore, must prevent any breaking of the abscess wall. Large explorations through a bone flap cause distortion and sometimes even extrusion of the wall. To rid the brain of the entire cavity would seem an ideal procedure were it not for the fact that the area immediately outside the wall is often the seat of inflammatory changes, and another abscess or diffuse encephalitis may follow.

The distortion of the brain which follows decompression makes this a very bad procedure in brain abscess, as it favors rupture of the membrane, with escape of pus into the ventricle, subarachnoid space or brain tissue.

In the usual type of deep brain abscess, the most simple drainage of the cavity through a small opening as near the bottom as possible, I believe, gives the best results. The opening in the skull and dura should be only large enough to accommodate the drains, thereby preventing herniation. At the initial operation, a goodly portion of pus can be evacuated without danger of collapse of the wall, and drains should be placed well into depths of the cavity. The drainage material should be selected with a view to prevent deterioration if left in for a number of weeks, and it should be flexible to insure adjustment to the gradually contracting abscess wall. Folded rubber protective drains without gauze and split rubber tubes meet these requirements. When drainage is established in this way there is no postoperative reaction, and the care of the patient consists in changing the outside dressing at frequent intervals.

The original drains should be left in place until there is practically no pus, at which time one may feel that the abscess cavity has been converted into a small sinus immediately surrounding the drains. If these have been satisfactorily placed free drainage will begin by the fourth or fifth day. This interval is necessary for the establishment of the tract, because the original evacuation has relieved some of the pressure and a reaction must occur along the course of the drains. In one patient with a temporal lobe abscess, about ten days after the operation there was a visible ebb and flow of pus at the external opening of the drains, synchronous with the heart beat, and the flow could be increased by coughing. This seemed to indicate a normal pressure relation, as the flow was similar to that seen in a needle when the normal ventricle is punctured. With this type of drainage, all symptoms disappeared.

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[3] Bagley, Charles, Jr.: Brain Abscess with Pathological Observations, Surg., Gynec. & Obst., to be published.

During the first few days, some manipulation may be necessary; but, when drainage has been established, only the outside dressings should be changed. As the wall contracts, the drains may be extruded a few millimeters a week after the first three or four weeks. To provide for this slight extrusion and to prevent injury of the abscess wall by the inner end of the drains, a mishap not to be overlooked if split rubber tubes are used, the drains should be cut close to the scalp, and dressings applied about them so as to prevent pressure on their outer extremities. Any such procedure as sewing to the scalp to prevent extrusion should be avoided.

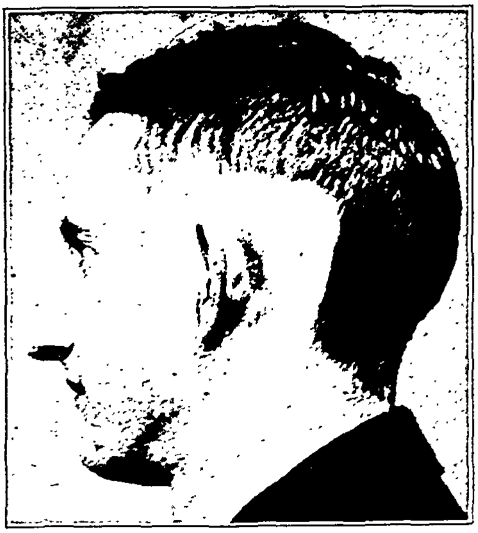

Fig. 5.—Appearance fourteen weeks after drainage of a temporal lobe abscess through the original mastoid incision. The small rubber tissue drains placed in the wound at the time of operation were still in position.

Figure 3 shows a small granulating wound with small split tube drains leading to a large abscess of the left hemisphere in Case 8. A scar in the lower left temporal region marks the site of the first aspiration, which was negative. As this was a metastatic abscess, there was no adjacent sinus inflammation to lead one in selecting a point of drainage, so that an effort was made to evacuate the abscess at its lowest portion. When the first puncture was negative, it was evident that we were below the lesion, and the higher puncture gave positive results.

Gravity is a most important aid in drainage of abscesses, and should always be considered in the placing of drains. The inability to drain frontal lobe abscesses from the bottom constitutes one of the chief obstacles in the management of this type. This difficulty was forcibly brought to our attention in one of our fatal cases.

Figure 4, reproduced from a roentgenogram of E. M., who had a large left temporal lobe abscess, shows a rubber tube drain placed through the floor of the middle fossa into the bottom of the abscess. This point was selected for drainage because the metallic foreign body producing the abscess had entered through the malar bone, and the proximal part of the original tract was used for drainage. Recovery followed this procedure.

G. S. S. had a left temporal lobe abscess of three and one-half weeks' duration. The left mastoid also was involved, and during the mastoid operation, which preceded the abscess drainage by four days, the otologist, Dr. M. L. Breitstein, noted that the dura was exposed above. With this knowledge, and the open mastoid wound, drainage of the left temporal lobe abscess through the original incision was simple. As this abscess was due to a *Streptococcus hemolyticus*, thorough drainage with very little operative trauma was essential. The photograph reproduced as Figure 5 was made three and one-half months after the operation, and there was practically no drainage of pus, although the small protective drains were still in position.

The after-care of the patient is very much more important than the operation, and all the dressings during the period of free drainage should be done by one person, that there may be no division of responsibility in having the drains remain in position. It may be necessary to continue drainage for three or four months after the operation, but the course is otherwise simple and there is little risk of having the infection light up after an apparent cure.

This method of drainage is not useful in cortical abscesses occurring at the site of smashing skull injuries, when liberal drainage is usually demanded. It has been shown that the protective reaction in cases of this type establishes a firm fibrous tissue barrier; and, if care is taken to avoid injury to the membrane, a very free drainage can be established without danger of herniation.

A patient had a large left temporal abscess, the result of bone fragments driven into the cortex by a butcher's cleaver, six weeks previous to the operation, which consisted in removal of the bone fragments and the filling of the cavity with rubber tissue drains. Free drainage continued for three months, and a small drain was allowed to remain for a longer period. Recovery was complete.

In another case, fibrous tissue containing the bone fragments was removed in mass, leaving an area of unprotected brain. Into this area ruptured a second abscess, the presence of which was not previously known, and a diffuse encephalitis resulted, followed by death. In an exactly similar case, drainage was done without interfering with the fibrous tissue wall, and the patient recovered.

The occasional success following extirpation of the abscess wall is due to a particular type of abscess, as shown in Case 9. The abscess was of long duration, and when right homonymous hemianopia determined its location, an effort was made to aspirate the pus. A ventricular puncture needle, passed through a trephine opening, encountered the dense fibrous tissue wall, but even with firm pressure failed to penetrate the wall. We then believed that we were dealing with a tumor, and a bone flap was turned down. When the mass was removed and held in the operator's hand, a small pedicle about the size of the radial artery was found to be patent, and the slight pressure of the hand caused pus to exude. A study of the wall of the showed it to be made up entirely of fibrous tissue, and it was classified as a pedunculated dural abscess. The postoperative result was entirely satisfactory, but I believe that we should not be led to practice this method, which entails the removal of the protective membrane and exposes the brain to any organism, and may result in a diffuse encephalitis.

It is with a great deal of interest that I sum up the results of our efforts in the twenty-four cases studied. The abscess was verified by operation or necropsy in all but one case. Of the number, three patients died without operation; twenty-one were operated on, of whom twelve recovered and nine died, giving a recovery rate of more than 57 per cent. Among the patients who recovered, three are under treatment in that drains are still in the wound, but all are out of the hospital and entirely free from symptoms. In the most recent case, the patient was operated on, May 3, 1923.[4]

The three patients not operated on who died were so seriously ill when admitted that it was evident that operation offered nothing. The condition was far advanced in all the fatal cases; in some instances meningitis was known to complicate the abscess and the operation was undertaken as a last resort.

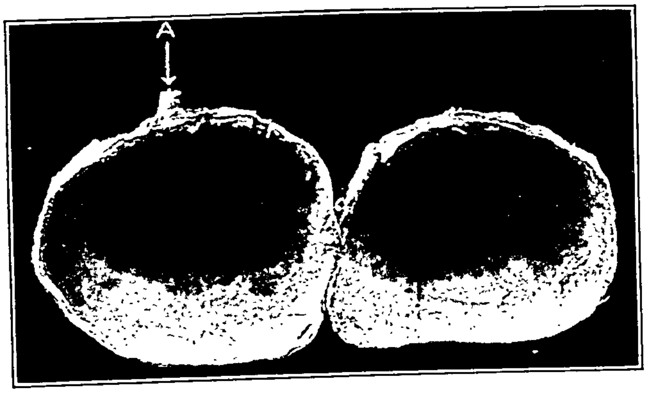

Fig. 6.—Bisected abscess sac with thin wall; *A*, pedicle forming communication between the abscess and an area of skull necrosis.

The twelve patients who recovered were seriously ill, and each at some time or other during the course caused us much anxiety.

SUMMARY

Brain abscess, still one of the most serious of cerebral lesions, requires prompt diagnosis and precision in treatment. The diagnosis often depends on some very obscure sign or symptom. Many patients, when admitted, are in such condition that errors in judgment as to time or method of procedure may determine the issue.[5]

The Latrobe, Charles and Read streets.

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[4] These patients were examined in August, 1923, and found free from neurologic symptoms. In two cases, the tracts were healed; the third was draining satisfactorily.

[5] This work was done in the Neurological Laboratory of the Phipps Psychiatric Clinic, Johns Hopkins University, and has been greatly facilitated by the interest and cooperation of Dr. Adolf Meyer. I am indebted to Miss Cecilia Bisson for the photographs.

Special Line of Health Work Impossible.—The time is at hand when legislative bodies and the people themselves should thoroughly understand that no special line of health work can be complete in itself; that the whole problem of health and disease is so interrelated and complex that it is impossible to make satisfactory progress along one line unless it is conducted in a definite and proper relation with all others. —W. S. Draper: *Pub. Health Rep.* 38:2716 (Nov. 16) 1923.

IMPORTANCE OF COMPLETE EXAMINATION OF THE CEREBROSPINAL FLUID

IN SURGERY OF THE SPINAL CORD *

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The diagnosis of tumor or other causes of chronic compression of the spinal cord is difficult, and the delay that usually takes place before such cases come to operation is a source of regret and sometimes mortification both to the surgeon and to the neurologist.

There are fifty cases in my own series in which the date of the initial symptom is accurately known and in which the cause of compression was determined at operation. The average time lost in this series between the onset of symptoms and the operation was two years and four months. Many of these patients had had prolonged treatment for various supposed ills under mistaken diagnoses, and not a few had had major surgical procedures, such as cholecystectomy, appendectomy and pelvic operations, before coming under my care.

In the whole series there have been fourteen cases in which laminectomy was absolutely negative. Several times in the last two years, operation has been advised against in cases in which exploration would certainly have been performed a few years ago. This has been due almost entirely to the added information obtained by the complete and systematic examination of the cerebrospinal fluid which we have been carrying out in all suspicious cases during the last four years.

In this connection I wish to touch on a few other points which may be conveniently classed as a portion of the more direct examination as contrasted with the more strictly neurologic examination.

In omitting all reference to the neurologic examination and the recent advances that have been made, it is not that I am not keenly alive to its importance. Far from it; our earlier knowledge of pathologic changes in the cord was based alomst entirely on neurologic study. In itself it is a wide field and entirely beyond the scope of this paper.

Palpation of the spine may bring out important facts, particularly in regard to the level of the suspected lesion. A localized kyphos, even if very slight, should always be noted, and is an important indication of the level of a neoplasm orginating in the spine. Limitation of motion, particularly if confined to a small extent of the spine, should not be overlooked. Scoliosis, also, particularly if sharply localized, is to be given serious consideration. Tenderness of the spinous processes or localized pain on motion of the spine or coughing is of perhaps even greater importance. None of these are new, but we all too commonly neglect this part of the examination, and during recent years I have frequently had the importance of it impressed on me. I know that this part of the examination is frequently omitted or at least not recorded, as in going over the hospital records I found no mention of the condition of the spine in about 20 per cent. of my own cases.

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* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Recent advances in roentgenology have increased greatly our knowldge of such growths as we have under discussion, and should be used to the fullest extent. We must be fair to our roentgenologist, however, and not ask him to roentgenograph the whole spine. If we do, he gives us only a part of that of which he is capable. If we postpone the roentgen-ray examination in a given case until after we have reached a fairly definite conclusion as to the suspicious level, the roentgenologist can focus there and give us a clear-cut, stereoscopic picture of great value. We must remember, however, that the neurologist, the roentgenologist and the surgeon talk a different language in speaking of levels. The neurologist speaks in terms of cord segments, the roentgenologist in terms of vertebral bodies, and the surgeon in terms of spinous processes. We should be sure that segment levels have been translated to terms of vertebral bodies before we tell our roentgenologists at what level we wish him to focus, and to terms of the spinous processes before we operate.

Table 1.—*Cases of Suspected Spinal Cord Compression*

Total number of cases	89
Date of onset known; lesion demonstrated at operation	50
Time elapsing between onset and operation	2 years and 4 months
Date of onset unknown; lesion demonstrated at operation	7
Lesion *not* demonstrated at operation	14
Cases in which operation was not performed	18

The most important single sign of cord compression, and by all odds the most reliable, is that evidence which is obtained from the cerebrospinal fluid.[1] This is so important that, at the risk of repetition, I shall explain the whole scheme as we have used it at the Massachusetts General Hospital.

I cannot speak too highly of the brilliant and painstaking work of Dr. J. B. Ayer in his studies on the chemistry and dynamics of the cerebrospinal fluid. He has made the cerebrospinal fluid studies in almost all the cases in my series. Every patient suspected of cord tumor is prepared for puncture of the cisterna magna, as well as for lumbar puncture, and lumbar puncture is performed. Pressure readings are made, pulse and respiratory oscillations are noted, and the patient is directed to cough and to draw a deep breath. Next, the jugular veins are compressed, and finally a small amount (usually 5 c.c.) of fluid is withdrawn. Notes are taken on the behavior of the fluid in the manometer during all these procedures. A portion of the fluid withdrawn is tested with alcohol for excess of protein. If the information obtained in these various ways gives definite evidence of block, puncture of the cisterna magna is not done. If there is absolutely no evidence of block, either chemical or dynamic, puncture of the cisterna magna is not done. If, however, there is the suspicion of block, either chemical or dynamic, the cisterna magna is punctured, combined readings are made, and fluid is drawn from both needles for quantitative examination of protein and for Wassermann examination and study of the cells. If tumor of the cauda equina is suspected, two lumbar punctures, one usually between the twelfth dorsal and first lumbar vertebrae and the other between the fourth and fifth lumbar vertebrae are performed. Occasionally, sacral puncture with injection of physiologic sodium chlorid solution into the epidural space, with observation of dynamic changes in the lower manometer, is also deemed advisable. Everything is arranged beforehand to carry out all of these procedures, if necessary. In this way, all the information required can usually be obtained at one sitting.

As suggested above, I feel that the presence of marked increase of protein in the lumbar fluid, and absence of rise in pressure on jugular compression (the so-called Queckenstedt test[2]) is evidence of complete block. Ayer has found this to be so in all cases of complete block as shown by double puncture in our earlier series. Such cases are almost always far advanced, and irreparable cord damage is frequently to be expected. In such cases, cistern puncture is unnecessary. Cistern puncture is of great value to us in this type of case before the evidence of complete block by lumbar puncture alone has been proved, and it is of even more value in the early case. In the early case, evidence of complete block is frequently absent, and it is in this group of early doubtful cases that we must of necessity look for our best surgical results. We feel that a slow change in pressure in the lumbar manometer, as compared with rapid change in the cistern manometer, is dynamic evidence of partial block; and that a difference is shown by quantitative examination, in the amount of protein present in the fluid taken from the cistern and lumbar needles is chemical evidence of partial block.

The danger of cistern puncture has been emphasized at many gatherings of physicians, and has, I think, been overestimated. It is beyond question a delicate procedure, one requiring skill and judgment, and one that should not be attempted without repeated trial on the cadaver. In careful hands it is a harmless procedure, as is shown by Dr. Ayer's compilation of nearly 2,000 such punctures without a fatality.[3] We would not think of using it in some minor ailment, but spinal cord tumor is such a serious and obscure disease that we must use this additional diagnostic measure.

It is easy to see that, if double puncture is performed in the presence of a small tumor or a tumor without enlargement of the cord, there may be no dynamic block. Such was the case once in our series, a metastatic carcinoma of the medulla of the cord; no dynamic block was demonstrated, but a distinct difference in the chemical tests was shown. We feel that such a result should be counted as a positive, since a chemical difference is, to our minds, a more delicate test than evidence of dynamic block.

It is difficult to analyze the results of a test such as this without permitting the personal equation to creep in, but I have attempted to do so with these results:

Table 2.—*Suspected Cord Compression: Series 1919-1923*

Double puncture positive, lesion proved		31
Double puncture unnecessary in view of recent knowledge	22	
Double puncture necessary for positive diagnosis	9	
Lumbar puncture positive, double puncture omitted; lesion proved	7	
Double puncture negative; no lesion found		8
Double puncture positive; no lesion found		2
Double puncture negative; lesion found		1
Total number of double puncture cases		42

Positive though incomplete evidence of block was shown in two cases in which no lesion was found.

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[1] Ayer, J. B.: Spinal Subarachnoid Block as Determined by Combined Cistern and Lumbar Puncture, with Reference to Early Diagnosis of Cord Tumor, Arch. Neurol. & Psychiat. 7: 38 (Jan.) 1922.

[2] Queckenstedt: Ztschr. f. Ner[illegible]h. 55: 325, 1916.

[3] Ayer, J. B.: [illegible]ion to the auth

In a rather typical case of cord compression, at the first double puncture no evidence of block was shown. About ten days later, partial block appeared and was proved by both dynamic and chemical tests. Following an exploratory operation, which did not reveal anything, this patient showed some evidence of pressure at a higher level. At no time was her general condition good enough to warrant further exploration. She died eight weeks after the operation. Necropsy was not allowed.

A patient had had multiple neurofibromas for many years. During the last year, there was increasing evidence of compression of the dorsal cord with a fairly definite girdle sensation at the fourth dorsal level. Six weeks ago, an exploratory operation was performed, which revealed nothing of interest. I still hope that the lesion causing the partial block in this case will finally be demonstrated.

In a case of long duration, with definite periods of remission of symptoms, double puncture was performed during a stationary period, and was negative. Exploration revealed an extradural cyst of unknown origin which caused no local deformity of the cord. There has been little or no improvement in this case since operation, two years ago.

My own belief is that positive evidence of block, dynamic or chemical, whether obtained by double puncture or by lumbar puncture alone, is almost conclusive evidence of a compressing lesion. The two "error" cases cited above were not proved either by necropsy or subsequent history, and to my mind they may well represent a surgical failure rather than an error in diagnosis. Lack of evidence of block does not necessarily prove the absence of a compressing lesion. In nine such cases a lesion was found but once, and the other eight have been proved, either by necropsy or the subsequent course of the disease, to be degenerative lesions. In view of these facts, I am willing to accept absence of block as presumptive evidence of the absence of a compressive lesion.

I had hoped that the quantitative determination of protein in the lumbar field alone, after sufficient experience, would give us enough evidence of block so that we might do away with double puncture. Unfortunately, this is not the case, for results have shown that we cannot rely on that single test alone. Chemical evidence of block, if slight, can be rated as positive only in case a difference is shown in the protein content of fluid from above and below the lesion. Protein increase in connection with a corresponding increase in cellular elements points to some inflammatory change. Without this cellular increase, the cause may be uncertain. Four out of eight cases of negative exploration or double puncture in which the process has since run the typical course of a purely degenerative lesion have shown a small but definite increase in protein. One case, as yet an unsolved problem, in which a negative exploration was made, showed xanthochromic fluid at both the cistern and the lumbar needle, and no dynamic evidence of block.

The tumors of the cauda equina must be taken as a group by themselves, as their cerebrospinal fluid picture is very peculiar, in that many of them show a marked increase in protein at the lumbar needle with a lesser increase at the cistern needle, and without any evidence of dynamic block. There have been seven such tumors in our series. Six have shown the sharp increase in protein above the tumor, mentioned above. The seventh (one of our early cases) was not carefully studied, and only fluid from below the tumor is recorded. Two showed definite block on differential lumbar puncture, and one gave no fluid at the lower needle, the canal being obliterated by tumor. I can find no mention of this peculiar behavior of cauda equina tumor in the literature, and am indebted to Dr. Ayer[3] for this interesting observation.

If I were asked to name the conditions that most closely simulated cord tumor, I should answer, without hesitation, multiple sclerosis, the degenerative lesions associated with pernicious anemia, and localized degenerative myelitis. These may now be excluded by complete examination of the cerebrospinal fluid, and in pernicious anemia we have, in addition, much more definite knowledge of the blood picture than was the case a few years ago; and in multiple sclerosis the progressive cases usually show a characteristic spinal fluid.

We now come to a different phase, namely, the level of the lesion. I have already spoken of the part that multiple puncture may play in tumors of the cauda equina, but it is a long distance from the cisterna magna to the tip of the cord, and between these points Dr. Ayer and I have not ventured to attempt spinal puncture. We realize that it has been done,[4] but feel that there is great danger of damage to the cord.

Selling[5] has advocated the injection of a dye into the lumbar space as a guide at the time of operation, and this, I think, must be of distinct advantage in complete block. I have had no experience with it, but intend to use it on the next suitable case. Dandy[6] has given us injection of air into the cerebrospinal space, and by it has demonstrated the presence of cord compression. In my hands this has not been as satisfactory as injection of air into the ventricles, owing to the passage of air by a partial block and to the technical difficulty of showing the air by the roentgen ray.

We have been looking for some nonirritant fluid, opaque to the roentgen ray, for use in the spinal canal, but as yet we have not found it. We are told that Sicard[7] has perfected such a fluid and is using it successfully. If this new fluid proves to be really successful in a considerable series of cases, one of our greatest difficulties, that of determining accurately by laboratory methods the level of a given lesion, will have been solved.

Finally, there are certain new procedures to be followed at operation which will give us additional information if we do not come down directly on the new growth. Sellings' procedure has already been mentioned, and should prove of value. I should like to point out a few more. When the laminae are first removed, the epidural fat should be carefully inspected. Absence of this layer suggests local pressure, and is an accurate sign of the presence of tumor. Absence of this sign, however, does not mean absence of tumor. When the dura is opened, the cerebrospinal fluid pours out and is taken up with gauze. After this is done, and the fluid level has been noted, pressure on the jugular veins will cause a rapid rise in the cerebrospinal fluid if the dural opening is above the block. If it is below, there will be no rise; if it is below a partial block, the rise will be gradual.

I feel sure that the important recent advances in the surgery of the spinal cord are largely those relating to diagnosis, and that, of these, the complete study of the cerebrospinal fluid is the most important.

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[4] Marie, Foix and Bouttier: Rev. neurol., 1914, p. 315; Marie, Foix and Robert: Rev. neurol., 1913, p. 712.

[5] Selling, Lawrence: Localization of Spinal Cord Tumors, Arch. Neurol. & Psychiat. 8: 27 (July) 1922.

[6] Dandy, W. E.: Bull. Johns Hopkins Hosp. 33: 190 (May) 1922.

[7] Sicard, Robineau and Lermoyez: Rev. neurol., 1923, p. 158.

LOCALIZATION OF BRAIN TUMORS

BY DETERMINATION OF THE ELECTRICAL RESISTANCE OF THE GROWTH [*]

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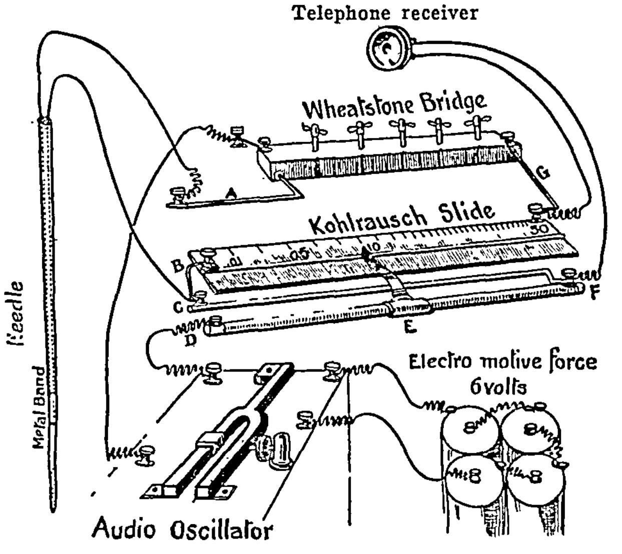
That different tissues produce a varying resistance to the passage of an electric current has long been known. Waterman,[1] Crile [2] and others have tested out the electrical conductivity of tissues and shown that there is a difference in conductivity between normal and fatigued tissue and between healthy and pathologic tissue. Meyer and Schlueter [3] used the degree of resistance of the brain tissue to an electric current as a means of differentiating between normal brain and tumor tissue at the operating table. It is this application of the resistance of tissue to the passage of an electric current that is of particular interest.

Meyer and Schlueter report one case in which the resistance produced by the tissue in a proved gliomatous tumor was less than one half that of the normal brain. We have duplicated their apparatus and, from observations on twelve cases at the operating table and over sixty tests on animals, on fresh and formalized brains, we can substantiate their assertions as far as gliomatous tumors are concerned. In every case in this series, either at the operating table or at postmortem, gliomatous tissue produced an electrical resistance from a third to a half lower than that of the surrounding normal brain.



Apparatus: *A, C,* connections for needle circuit; *F, G,* connections for telephone; *B,* connection between slide and needle circuit; *E,* sliding contact.

Through the kindness of Prof. A. W. Goodspeed, of the Department of Physics of the University of Pennsylvania, we were able to reproduce the apparatus used. The instruments employed are simple. An audio-oscillator of about 1,000 frequency is operated by four dry cells in series. This is inserted as one of the arms of a Kohlrausch bridge, which has a wire 25 cm. long with a sliding contact. The method of use is similar to that of the Wheatstone bridge. A low resistance telephone receiver forms another arm, the unknown resistance being that of the tissue in which is inserted the special electrode. This electrode is in the form of a needle of glass or hard rubber in which are buried two fine irido-platinum wires carefully insulated from each other. One wire passes to the surface through the tip of the needle; the other is connected to a platinum band on the surface of the needle, 1 cm. below the tip. It is the resistance of the tissue to the passage of the current between these two poles that is determined. The resistance in the needle circuit is determined by inserting a known resistance in ohms on the bridge. The sliding contact is then moved up and down the wire until the high-pitched hum from the oscillator, as heard in the telephone receiver, reaches a minimum. When this occurs, the resistance to be determined is read on the scale under the wire. This apparatus is sufficiently accurate for clinical use, and is easily adapted to the operating room.

Experimentally, we tested the electrical resistance of normal brain and different areas of the same brain in a series of ten dogs. The resistance of all these was approximately the same, and the motor cortex, frontal lobe and occipital lobe showed no appreciable difference in resistance. As observed by Meyer and Schlueter, we found that the cerebellum is more resistant than the cerebrum, and the spinal cord more than either. We have had no opportunity clinically to compare the cerebrum with the cerebellum.

In a series of thirty formaldehyd-hardened brains containing proved gliomatous tumors, the gliomatous tissue consistently produced a resistance from a half to two thirds less than that of adjacent normal tissue. Formaldehyd-hardened tissue gives a much higher resistance than living brain tissue, and the resistance of the preserved normal tissues vary from specimen to specimen; but in every instance the gliomatous tissue is strikingly less resistant to the current. In fifteen brains containing certified endotheliomas, the resistance of the tumor was a half less than the normal tissue in twelve, in two from a third to a quarter less, and in one the resistance was approximately the same as the surrounding tissues.

In a series of eight normal brains tested immediately on removal from the body and before preservation, there was found but little change in the resistance on passing from the surface to the deeper areas of the brain. We have also noted this fact in five cases in the living brain, but the change was so slight that it in no way affected the reliability of the test. A slight increase in the resistance may be noted on passing into the lentiform nucleus, internal capsule or thalamus.

In two cases of hydrocephalus, the resistance of the ventricular fluid was determined. There is very little difference between the resistance offered by the cerebrospinal fluid and that of tumor tissue. In testing the resistance on entering the ventricle, there was a drop in the resistance closely comparable to that obtained on entering a tumor. At the operating table, we have had no opportunity to compare tumor resistance with that of the ventricular fluid, but we feel that there is as marked a drop in resistance on passing the needle into the ventricle as on entering tumor tissue.

In formaldehyd-hardened brains containing areas of softening or hemorrhage, the area of the lesion produces somewhat less resistance to the current than the normal brain, but not as much change as tumor tissue. There has been no opportunity, clinically, to compare the resistance of these different lesions with that of known tumor tissue.

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[*] From the Surgical Service of Dr. C. H. Frazier, University Hospital.

[*] Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Waterman, N.: Bioch. Ztsd. **133**: 535, 1922.
2. Crile, Hosmer and Rowland: Am. J. Phys., February, 1922, p. 458.
3. Meyer and Schlueter: Zentralbl. f. Chir. **18**: 1827, 1921.

It must be remembered that the resistance of the entire circuit containing the needle is being estimated. Changes in the material, or in the caliber of the conducting wires, or in the distance between the electrodes on the needle, will produce changes in the resistance. But whether the resistance found to be constant for normal brain tissue is higher or lower than those we obtained, the variation in the resistance on entering pathologic tissue will still appear. It is this comparative estimation of the resistance on passing from normal to tumor tissue that makes the procedure of value. The instruments should be standardized against an electrolyte of known constant resistance before use. We found that tenth normal hydrochloric acid was about as resistant as the normal living brain, and did not change its resistance to the passage of the current over long periods of time. When tested against this standard, the apparatus now in use showed a resistance of from 200 to 250 ohms.

At the operating table we have used the apparatus in twelve cases. Of these, five were gliomas. In every case, the resistance of the tumor was only half of that of the normal brain. One was a sarcoma, and in this, the resistance between normal brain and tumor coincided closely with that of the gliomas. Of the endotheliomas, the resistance was lower than the normal brain tissue in four and higher in two. We are at a loss to provide an explanation for this difference in tumors of the same pathologic structure. But the resistance differed so markedly from that of the surrounding brain that we had no doubt but that the needle had passed from normal to abnormal tissue. In three cases, the cortex was normal in appearance when the dura was opened. The presence of a subcortical growth was determined by passing the needle into the brain substance, and noting the sudden drop in resistance when the tumor was encountered.

TABLE 1.—*Clinical Results and Resistance*

Case	Type of Tumor	Normal Brain Ohms	Tumor Ohms
1	Glioma of frontal lobe	550	200
2	Glioma of motor cortex	525	250
3	Glioma of frontal lobe	900*	400
4	Glioma of temporal lobe	500-600	250
5	Glioma of occipital lobe	550	250
6	Sacroma of temporal lobe	550	250
7	Endothelioma of frontal lobe	550	750-809
8	Endothelioma of frontal lobe	550	250
9	Meningeoma of frontal lobe	550	350
10	Endothelioma of frontal lobe	550	300
11	Endothelioma-sarcoma of parietal lobe	550	250-300
12	Endothelioma of motor cortex	850*	1,600
		Hydrocephalus Cortex	Needle B Ventricle
1		850	250
2		850	250-300

* Needle B.

REPORT OF CASES

A short summary of the operative notes on the three cases of subcortical growths may be of interest.

CASE 1.—An exploratory operation was performed for frontal lobe tumor. When the osteoplastic flap was turned back, the dura proved normal on inspection and palpation. The dural flap was reflected, but the cortex was normal on inspection, and palpation did not reveal any positive evidence of a new growth. The frontal lobe was carefully raised, but was apparently normal at all points. The electrode was then introduced into the frontal lobe downward and forward. When both contacts of the needle were just buried in the tissue, the resistance was 550 ohms. On advancing the needle 1 cm. farther, the resistance remained unchanged. At a depth of three centimeters, the resistance suddenly dropped to from 200 to 250 ohms. The cortex was then opened along the track of the needle, and a large tumor arising from the dura, near the anterior clinoid process, was found and removed. The pathologic diagnosis was endothelioma.

TABLE 2.—*Measure of Resistance in Fresh Brain, Eight Hours After Death, to Show Changes at Different Depths of Penetration and Various Areas*

Needle B	Penetration Cm.	Resistance
Frontal lobe	1	3,250
	2	3,500
	3	3,500
	4	3,600
Temporal lobe	1	3,500
	2	3,200
	3	3,500
	4	3,700
Parietal lobe	1	3,300
	2	3,500
	3	3,500
	4	3,700
Occipital lobe	1	3,400
	2	3,600
	3	3,600
	4	3,750
Cerebellum	1	4,000
	2	4,250
	3	4,250
	4	4,250
Internal capsule		3,700
Thalamus		3,600
Ventricle		1,200

CASE 2.—An exploratory operation for tumor in the motor cortex was performed. When the bone and dura were turned back, the cortex appeared normal. The areas of the motor cortex were identified by stimulation with a unipolar electrode by noting the reactions in the extremities. The chief symptom had been convulsions of the jacksonian type in the face and hand. The resistance electrode was therefore passed inward through the cortex in the facial area. With both contacts of the needle just buried, the resistance was 550 ohms. When the needle was advanced 0.5 cm. farther, the resistance fell suddenly to from 225 to 250 ohms. A transcortical incision was made in this area and to this depth, but apparently no tumor was visible. It was decided that the resistance estimation was incorrect, and the wound was closed. At a later date, the patient succumbed. Examination of the necropsy material showed that there was a very soft infiltrating gliomatous tumor in the area below the transcortical incision. This, then, confirmed the correctness of the reduction in tissue resistance.

CASE 3.—An exploratory operation was performed for frontal lobe tumor. When the osteoplastic flap and dura were turned back, the cortex was normal on inspection and palpation. Inspection of the tip and side of the frontal lobe, and the tip of the temporal lobe, revealed no pathologic changes. The needle was therefore passed inward through the cortex. When both contacts were just buried, the resistance was estimated to be 550 ohms. At a penetration of 3 cm., the resistance had risen to 600 ohms. When the needle was advanced about 0.5 cm. farther, the resistance fell at once to 250 ohms. The frontal lobe and the tip of the temporal lobe were then raised and reflected inward, and a large, red, granular tumor was found growing from the wing of the sphenoid and the temporal bone at the base of the brain. This tumor mass bled so freely that no attempt was made to remove it. A radium needle was inserted, and a specimen removed for pathologic study. The diagnosis was sarcoma.

COMMENT

In a case in which the neurologic signs are sufficiently definite to warrant exploration, without the necessity of incurring the risk attendant on a ventriculogram, it may be found that, on laying back the osteoplastic flap and dura, the operator is confronted by an apparently normal cortex. The question of the justification of a transcortical incision becomes important. The passage of a small needle through the cortex to determine the electrical resistance of the tissues beneath is a relatively simple procedure. It is under these circumstances that this test has proved of especial value.

We feel that the electrical resistance of tissues may be estimated by the simple apparatus described with sufficient accuracy for clinical work.

Tumor tissue, particularly gliomas, produces much less resistance to the passage of an electric current than does normal brain tissue. Endotheliomas produce a different resistance to the current than does normal brain tissue, but this resistance may be higher or lower than that of the normal brain tissue.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SACHS, BAGLEY, MIXTER AND GRANT

Dr. Howard Naffziger, San Francisco: I agree with Dr. Sachs that there is nothing much to be said about the treatment of compound depressed fractures. One point on which I am somewhat at variance with him is the matter of brain edema. When I might use that term I refer only to those cases in which the fluid increase is fixed in the tissues of the brain and not to other cases in which there is free fluid, not fixed, and which are quite different from edema. In cases of edema with a dry surrounding brain showing, probably, punctate hemorrhage or something worse in the manner of hemorrhages, I have finished a decompression unable to institute drainage, and felt that the operation was inadequate. My feeling about these traumatic head cases is that the ones in which we are able to give relief surgically are the ones in which we can remove something—fluid, blood or slightly blood-tinged subdural fluid. At any rate, the removal of something is usually essential. I have not yet had a case of head injury in which I thought the bone flap operation would be preferable to a subtemporal decompression, which also permits a fairly good exploration of the motor region and also of the frontal and occipital lobes. I am particularly glad to know of Dr. Sachs' experience with spinal puncture. It will certainly make me more cautious, but in a considerable number of spinal punctures done after head injuries I have not seen trouble following. We have been doing decompression for the relief of pressure less and less. The cases in which we have felt that this has been of value have been the middle meningeal hemorrhage cases and extrameningeal hemorrhage cases of other types, which are not very common. I feel that we have been unable to get blood which showed a subdural or extra-arachnoid accumulation of fluid. It is an impression not based on actual figures that posttraumatic symptoms do not occur as frequently in the cases in which operation is performed as in those in which operation is not performed. There is only one other point in connection with the signs for operation; that is, regarding the low pulse pressure. I cannot agree that those are the signs that determine pressure. I think most of us feel that it depends on which way those signs are going. One case may show a pulse pressure of 50 with stupor, and I think many of us would feel with those symptoms increasing that operation was necessary. If the symptoms are decreasing or at a standstill I think one can feel that he can wait. As I listened to Dr. Bagley, the fact was brought home to me that, in the main, the outlook depends largely on what we encounter in our exploration. It certainly gives one a feeling of hopelessness when the needle plunges into an abscess and pus is encountered before a capsule is found. The favorable abscesses are the encapsulated ones. I agree with Dr. Bagley as to the general principles of their treatment. In two cases of abscesses with meningitis, recovery ensued after drainage of the abscess. Evidently when the organisms reached the spinal fluid they were of low virulence and there was only a feeble reaction to them. As to Dr. Mixter's paper, I should like to add my support of the Ayer puncture as being very useful. I have had no fatalities and, except in one case, did not get into the cisterna. One of the things Dr. Ayer indicated is that even without cistern puncture we can gain a great deal from lumbar puncture alone. I have followed the scheme that Dr. Mixter has outlinel not only of pressure at the falx but of jugular compression. I feel that we can secure very accurate information from that and rely a little less on the combining with cistern puncture, though in some cases the clinical knowledge cannot be gained in any other way than by the two punctures. Dr. Grant's work is new to me. I hope to learn more of the method and to have an opportunity of watching his use of it.

Dr. Gilbert Horrax, Boston: Dr. Sachs does well to emphasize the fact that it is not so much the fracture that we are concerned with as the brain injury. Like Dr. Naffziger, I have not seen any deleterious results in lumbar puncture in cases of fractured skull, which is quite contrary to the experience that exists in cases of brain tumor. Lumbar puncture is a great asset in certain types of fractured skull, preferable to operation. My experience with the hypertonic salt solution has been somewhat favorable as an aid in getting rid of the cerebral edema. Dr. Bagley certainly has had some excellent results with brain abscesses. To have a mortality as low as his is certainly commendable. It is in abscesses with a thick capsule that our best results can be obtained. One method of technic, which applies in a certain number of cases, is worth while. It is well known that leaving a drain in a brain abscess without having it pushed out is a very difficult thing to control. If there were a way of inserting a drain and having it stay in, the method that I am about to outline would not be necessary; unfortunately, it is just such a problem that exists. In abscesses within 2 or 2.5 cm. of the surface, the sac may be isolated without an attempt at complete removal. The sac may then be split open fairly wide, an inch or an inch and a half, and its edges grasped with clamps. Then with a needle and silk the edges may be sewed to the dura or subcutaneous tissues, thus marsupializing the abscess and turning its contents permanently to the outside. In the case in which we applied this principle complete recovery ensued. The intracranial pressure gradually extruded the sac of its own accord and it came off as a slough, healing and then going on in the usual way. Dr. Mixter has done an excellent piece of work. Combined puncture is certainly a method that is important in certain cases. Dr. Grant has given us a very important and interesting new method.

Dr. Laurence Selling, Portland, Ore.: Dr. Mixter has called attention to the fact that two points must be taken cognizance of in the diagnosis of spinal cord tumors: first, the existence of compression, and, second, the level of the lesion. As to the existence of compression, there had been little advance in our methods of diagnosis from the time of the early neurologic studies until the recent work of Dr. Ayer, about three years ago. It is a matter of considerable interest that the facts developed and the technic of the procedure as originally presented by Dr. Ayer have required no revision, and have received few additions. His original conclusions and his original technic have been tried and approved by every one who has used the method as he recommended it. As he has gone on with the work, he has found it possible to diminish the frequency of resort to combined puncture. In many cases in which he first used combined puncture, he now finds lumbar puncture alone, with study of the Queckenstadt sign, adequate for diagnosis. When the Ayer technic gives evidence, both hydrodynamic and chemical, of complete block, we have positive evidence in the differential diagnosis as between degenerative lesions, on the one hand, and obstructive lesions on the other. When we find partial block, we are not quite so sure of our ground. It is here that further studies are going to add to our knowledge, and probably enable us to recognize the existence of cord tumor, and resort to operation much earlier than has been possible in the past. As to Dr. Mixter's [illegible] cond point, the level of the lesion, we are [illegible] tuated. [illegible] tioned a number of aids [illegible] y's [illegible] the injection of indigocarmin before operation, as I have suggested, and the use of iodipin. All of these may help. All of them deserve further study. But in the meantime we must place our chief reliance on a careful clinical neurologic study of the case. In reference to Dr. Grant's paper, I had the opportunity of seeing the method used in Dr. Frazier's clinic, and to observe the striking change that occurred when the electrode passed from normal into gliomatous tissue. This may prove of great help. When the neurologist makes a localizing diagnosis of brain tumor, and the surgeon on exploration uncovers normal tissue, we are always left in a state of doubt. Are there pathologic changes below the surface? The method described by Dr. Grant may help us to solve the problem, and at the same time avoid unnecessary transcortical explorations.

Dr. James B. Ayer, Boston: Referring to Dr. Mixter's paper, thorough examination of the spinal fluid has been considerable value in determining tumors and other things, but mostly tumors, compressions from various causes and also certain types of chronic meningitis, which must be differentiated by neurologic studies. We have been able to bring to operation very much earlier tumor cases especially, and, what is more important still, we have been able to spare a number of cases of degenerative cord lesion that would otherwise have been subjected to operation. The third point, which I think the clinicians will appreciate, is this: We are in the habit of saying to a patient, "I think you have a tumor." The patient, being a paraplegic, is left with the opinion that it is, perhaps, a myelitis and nothing will be found. You say: "I think an operation is wise. I would do it in my case." The patient refuses operation because we cannot say anything definite. Now we can say to the patient: "We know there is a compression of your spinal cord; we do not know whether it is a tumor that we can take out, but we know there is compression." In every instance the patient has accepted operation. That is a small point, but it is valuable because we supplant definite for indefinite knowledge. We are not now operating when cases do not present the picture we think they ought to. I want to thank Dr. Mixter very much for his cooperation. We have cooperated splendidly in this work for the last three and one-half to four years, and I hope we shall continue to cooperate as surgeons and neurologists must if they want to get ahead in diagnostic work.

Dr. Ernest Sachs, St. Louis: I am glad that Dr. Naffziger brought up one point that I did not make clear. If a case of intracranial injury shows signs of improvement by clearing up from my consciousness or semiconsciousness, of course, it should be left alone. I follow that plan also. I agree with him also that the most satisfactory cases are those in which one can remove fluid or blood; and the prospect of a good result is certainly greater and these cases are certainly much more satisfactory to the surgeon. Regarding his point about the inadequacy of decompression, I should like to say this: I realize fully that subtemporal decompression, or even a bilateral one, is not the ideal way of relieving the pressure; that is, it may not be sufficient. Dr. Naffziger brought out the point that the only way of relieving the pressure of a tight cast is to take it all off. The only way, therefore, of relieving tight pressure on the head would be to take the entire top of the head off, and none of us advocate that.

Dr. Charles Bagley, Jr., Baltimore: I am glad Dr. Horrax mentioned marsupialization of the sac. A certain amount of fibrous tissue in the form of dural shreds is carried in with bone fragments, and acts as a most valuable barrier against infection. In superficial cortical traumatic lesions in which the infection is not severe and the trauma not too great, the proliferation of this tissue will completely surround the abscess, so that the capsule extends from the rim of the torn dura in the form of a marsupialized sac. This is the type of abscess that requires a larger opening than a simple puncture; but care must be taken to prevent extrusion of the sac. I do not know whether Dr. Horrax means to marsupialize deep abscesses; if so, I do not agree; for, I am afraid, such a procedure would cause destruction of the abscess wall.

Dr. William J. Mixter, Boston: Dr. Ayer and I fully realize the importance of diminishing the number of combined punctures if we can, and we feel that we have done so in the past. We have done a much smaller number, as shown by the fact that we have had seven cases in which we based the diagnosis on lumbar puncture alone. I think that a further advance is coming in this particular procedure. The question of the Séquard method is something we must investigate carefully, because that will give a definite mechanical level, which we have needed because the neurologic level sometimes is at fault.

Dr. Francis C. Grant, Philadelphia: We brought this work here realizing that it was new and that the series of cases is small, and hoping that it would be taken up by the other men who are interested to prove whether it is really of value, as we believe it is.

RÔLE OF TRAUMA IN THE ETIOLOGY OF ORGANIC AND FUNCTIONAL NERVOUS DISEASE *

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The subject of the possible causal relation of trauma to the development of organic and functional nervous disease is thorny and difficult, yet of first and ever increasing importance. It concerns the general practitioner fully as much as the specialist, if not, indeed, more. There must be scarcely any medical men who have had experience of the question of trauma in compensation cases but are able to quote decisions in law which have been admittedly unsatisfactory from a medical and scientific point of view. The reason is that medicine is not an exact science, at least by no means wholly so; hence we must expect (1) great variety of opinion, and (2) occasional conflict of medical evidence. I say occasional; yet when, in reality, has a case involving the question of trauma come before the courts in which medical men have not appeared to be diametrically opposed to each other? One can understand differences in opinion and in interpretation, but how can we reconcile differences in observed facts? Too often has this medical conflict provided material for the cynic; too frequently have the representatives of our profession allowed themselves to be influenced, not by the objective medical facts of a case in dispute, but by the standpoint of the particular side on which they happen to be called. A man famous in the Edinburgh medical school of the middle of last century was Sir Robert Christison, the medical jurist, and of him Lord President Inglis, the greatest Scottish judge of the same period, said: "The professor went into the witness-box not in the spirit of a partisan, but in his proper office as a medical jurist, to aid the court and the jury in the elucidation of truth, and in securing the ends of justice." Were this, the ideal attitude of the medical and scientific witness, adopted more generally, there would be fewer unseemly disagreements on the part of those of us who are asked to express medical opinion in court cases.

In fairness, it must be admitted that the absence of authoritative medical pronouncements in the matter of trauma is greatly to be deplored. There is no body or compendium of medical doctrine to assist the medical

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

witness and, through him, the court. There is no unanimity in respect of terminology and definition. The least experienced and least knowledgeable medical man may find the same weight attached by the court to his evidence as to that of others much better able to express considered views. For the guidance of the profession, for the attainment of some semblance of accord, opinion expressed by a commission of accepted experts is the first desideratum. Contradictory statements cannot be avoided unless and until the physician has a thesaurus of neurologic doctrine to which he may turn and from which he may learn.

The extreme importance of the subject is evidenced by the enormous amount of litigation to which it gives rise. The total of money involved is almost incredible. According to figures recently given in the *Lancet,* quoted from a book by J. L. Cohen on Workmen's Compensation in Great Britain, the "total cost to the country of accidents and industrial diseases is from 36 to 48 million pounds a year," a colossal if in any way approximate figure. Litigation is incessant. Cases are constantly being taken up as a speculation by the less reputable kind of legal man, while, it need scarcely be said, as long as human nature is as it is, efforts will be directed to making capital out of infirmities. Erichsen, whose right to speak with authority none ever denied, declared that "an extensive experience in railway accidents will probably impress the observer more with the ingenuity than the honesty of mankind." As we shall see, and as I shall be able to prove by figures, the greater the chance of remuneration, the higher the percentage of "accident" cases.

WHAT CONSTITUTES AN ACCIDENT?

Trauma has been defined as "an abnormal condition of the body caused by external injury"; an accident, as "injury by some unexpected and external event." The original (English) Workmen's Compensation Act of 1897 was silent as to disease; the cases coming under it were defined as constituted by "personal accident arising out of and in the course of the employment" of the individual concerned. The amending act of 1906, however, included certain scheduled diseases arising out of the employment, such as lead, mercury and phosphorus poisoning, miners' nystagmus, telegraphists' cramp, and many other ailments. These are all now regarded as morbid conditions for which compensation is due. From the legal point of view, therefore, in respect of workmen's compensation, the distinction between accident and disease is vanishing altogether. I need scarcely indicate how unsatisfactory this is from the medical point of view, however, and how it tends to etiologic confusion. A few legal decisions may be quoted by way of illustration:

A woolsorter contracted anthrax, and this was held to be an "accident" arising out of employment; the "accidental alighting of the bacillus in the eye" was taken to be equivalent to the accidental squirting of molten metal or some poisonous liquid into the eye.

Owing to the breakdown of a pump, a miner had to stand in icy cold water for some hours; pneumonia supervened and led to death, and this illness was considered an "accident" arising out of employment.

On the other hand, a fever hospital attendant developed scarlet fever, but failed in his claim for compensation due for this "accident," because he could not prove a definite association of his illness with his employment.

Again, a workman inhaled sewer gas and developed enteritis; he claimed that his inhalation of the bacillus was an "accident," but the court held that sewer gas was not unexpected in a sewer, and the claim failed.

I know of a case in which a man fell off a ladder when at work and developed a hemiplegia; medical evidence showed without any question that the case was in reality one of encephalitis with hemiplegia, yet it was held to be an "accident" that the "germ" of encephalitis attacked the man while he was working.

If, then, these and similar illnesses are to be accounted "accidents" within the scope of the act, etiology becomes meaningless. It can always be maintained, apparently, that the arrival of pathogenic organisms in the tissues of the body is an "accident," arising out of external injury, and our ideas on causation are, at a stroke of the legal pen, rendered obsolete.

WHAT IS MEANT BY THE CAUSE OF A DISEASE OR MORBID CONDITION?

As medical men, we believe in the doctrine of specific causes. We know the rules laid down by Koch in regard to the bacteriologic origin of certain diseases. It may be taken as a good general rule that the more apparent causes for a disease, the less likely is any one of them to be specific. As a single illustration, take disseminated sclerosis. Because we do not yet know its actual cause, etiologic speculation has ranged, as a fact, from the inhalation of pollen to an affaire du cœur! Once the cause is discovered—we may be near it at last—these varying hypotheses will all go by the board.

The whole tendency of modern research is oriented in the direction of specific causes, both in nervous and in mental disease; hence it is shown from time to time that many "causes" are clearly spurious. No one now but believes that syphilis is the essential and adequate cause of tabes and of general paralysis. Nevertheless, we continue to suppose that some causes, not truly causative, are contributory. We suppose that the mere arrival of the spirochete in the neuraxis is not sufficient; we are taught that strain, stress, exposure, chill, other infections, trauma, etc., cause the specific organism to "light up" by reducing resistance; but such views are often unsatisfactory and always more or less speculative. In any case, it introduces an element of confusion, in my opinion, to claim such factors as contributory causes, if only for the fact that in innumerable instances the diseases mentioned develop without any such additional etiologic elements. Neurosyphilis is no more and no less an infective condition than typhoid, pneumonia, diphtheria or dysentery, but I am not aware that—to take the factor that now concerns us—typhoid or dysentery is ever considered traumatic in the sense in which the term has been applied to cases of neurosyphilis. For none of these infections will we consider trauma a cause, in the real meaning of the word, and there is no reason why the same argument should not apply to an infection of the nervous system.

In the case, therefore, of organic and of functional nervous disease, we ask ourselves whether the rôle supposedly played by trauma has not been greatly exaggerated, whether there is not a true cause for tumors and degenerations as there is for the infections to which the nervous system is liable, and whether there can be any real differences, etiologically speaking, between nervous disease and that of any other of the somatic systems. Do we hear as [illegible] of [illegible] on the chest producing bronchitis, o[illegible] [illegible]domen [illegible] ducing appendicitis or [illegible]ease do of a knock on the head causing a stroke, epilepsy, cerebral tumor, or what not? I have never been able to understand why it is alleged so persistently of the nervous system in particular that trauma initiates morbid neural processes, and can only imagine that our ignorance of much nervous etiology gives rein to speculation in a way scarcely applicable in respect of other parts of the body.

I do not, of course, attempt to deny for one moment that accidents such as a fracture of the skull, a fracture-dislocation of the spine, wounds and penetrating injuries of many different kinds will give rise directly to organic nervous symptoms; I am on the present occasion restricting myself to nervous disease in the ordinary acceptation of the term, and I maintain that in proportion as etiologic knowledge augments, such disease will be ascribed with less and less frequency to trauma as a vera causa.

TRAUMA IN ORGANIC NERVOUS DISEASE

1. *Cerebral Tumors.*—Cerebral tumors are often attributed to blows on or other injury to the head. In his monograph on the subject, Mendel cites four personal cases and two from other sources in which the question of a possible connection between a head injury and the development of an intracranial neoplasm arose. None of them is entirely convincing, though they are quoted as fulfilling the rules laid down by that author as follows: (*a*) The individual concerned must have had no symptoms before the accident; (*b*) other etiologic factors must be wanting; (*c*) the injury must have involved the head itself; (*d*) a certain relation in time (not specified) must exist between the injury and the commencement of the tumor symptoms, which subsequent operation or necropsy must not prove to have been erroneous.

Fortunately, the recent war has provided us with an experiment on a colossal scale, since in its course head injuries have occurred by the thousand. It is already nine years since gunshot wounds of the head began to come under my professional notice, and I have been seeing such cases ever since, as have many others. Abundant time has elapsed for the appearance of consecutive intracranial neoplasms; yet out of very many scores of personal cases I have never seen a single instance. The only practical conclusion is that the assertion that trauma may originate cerebral tumors is unjustified and obsolete.

A recent case from civil life may now be given:

A man, a laborer by trade, one morning fell about 2 feet on a scaffolding, and landed across a plank, which bruised the inside of his left thigh at its upper part. He was shaken, but resumed work an hour or two later, though in the afternoon he felt sick. The same evening he had two fits, which were definitely rightsided and jacksonian in character, beginning in the right side of the face, and temporarily interfering with speech. Progressive weakness of the right side ensued some weeks later, and after about three months he was admitted to hospital under my care, when the general symptoms of cerebral tumor, and the localizing ones pointing to a left frontorolandic site, were definitely present. Operation was undertaken but the patient's condition was not improved, and he died shortly afterward. At the necropsy a left frontal glioma was found, occupying mainly the posterior ends of the second and third frontal gyri.

The widow sued the employers for compensation, asserting that the tumor was caused by the fall of 2 feet on to the crutch. In court two medical "experts" declared that a fall on the coccyx might by concussion and dispersion of spinal fluid cause or initiate a morbid neoplastic process in the brain, but were unable to cite any experience objectively proving their speculation. On behalf of the employers I gave the argument from war experience as indicated above, and had the satisfaction of finding that the court appreciated the force of the contention.

2. *Disseminated Sclerosis.*—Trauma is not infrequently stated to be one cause of disseminated sclerosis; but since all the present available evidence suggests that the disease is infective in origin, it cannot possibly be assigned to trauma, in the sense of external injury. It is gratifying to find in the recent investigation of this affection by the Association for Research in Nervous and Mental Diseases that Dr. Lewellys F. Barker excludes trauma as a true cause, though he says injury may on occasion "light up" a latent case, or exacerbate one that is already manifest.

The evidence of the war, further, is quite opposed to any traumatic etiology. At Fulham Military Hospital, of some 900 consecutive neurologic cases seen by me from 1916 to 1918, only two were examples of disseminated sclerosis, and in neither had the patient been wounded, or blown up or gassed, or undergone any other injury. The relative rarity of cases of the disease during the war has already been commented on by more than one observer, yet nervous trauma was extremely common. Since 1919 I have had charge of a pensioners' clinic at the National Hospital, Queen Square, London, and hundreds of cases of war nervous disease have passed through my hands. Among these have been only six cases of undoubted disseminated sclerosis, and of the six the following are the only two in which a possible connection with trauma comes up for consideration.

F. R., fighting at Cambrai in 1917, was blown up and gassed at the same time. He had no mask on at the moment, was badly burned over the back, and was unconscious for a brief period. Three months later, when in a military hospital in England, he began to notice unsteadiness in his legs, and to have some slight defect in articulation. The legs became numb and cold for a time, but he had no bladder difficulty. When he came under observation in 1923, he showed the usual symptoms of disseminated sclerosis in moderate degree.

While there is no history of any previous symptom, and no evidence of the action of any other factor than that of trauma, it is clearly inadmissible to hold that trauma caused the disease; the most to be said is that it may have "lit up" a latent morbid process. In hundreds of instances of identical trauma (gassing and concussion) no such organic disease has made its appearance.

W. S., was in the Royal Air Force during four years of the war. He had crossed the English Channel some 200 times in the course of his flying experiences. Later, toward the end of the war, he was shot down in air fighting on three separate occasions, sustaining numerous minor injuries apart from the shock of crashing, but was never rendered unconscious. Four months after the last of these, he first complained of double vision and of tremor in the limbs. On his coming under observation in 1923, the symptoms and signs of disseminated sclerosis were exhibited in moderate degree.

Here again it must be allowed that the injuries, such as they were, can at the most have done no more than possibly accelerate the development of the disease; it might, indeed, be contended with perfect justice that they played no part at all in its evolution.

In view of the rarity of the disease amid the welter of war injury, one is naturally more than ever disinclined to allow its association with trauma in civilian life. Nevertheless, as every neurologist must know, such cases make their appearance at intervals. Two personal instances may be selected by way of illustration.

N. B., a young woman in domestic service, was cleaning a large and heavy mirror over a mantelpiece when it somehow became detached and fell on her right forearm, breaking as it fell. She felt a good deal of pain in the arm, which was bruised but not cut. In the course of a day or two numbness followed the pain, and weakness of the muscles of the hand and forearm. The case was diagnosed as hysterical dropwrist by the physician under whose care she came, but as the condition, though improving, did not clear up entirely, I saw her about six months after the accident. I was then struck with the fact that, on grasping, the wrist deviated unmistakably to the radial side, indicating relative weakness of the ulnar groups—an organic symptom. The patient was put on steady treatment and kept under observation. About six months later, an extensor response was obtained on the right side, and three months afterward on the left. In a word, the subsequent course of the case proved the disease to be disseminated sclerosis.

I will admit candidly that in this case I have always felt hesitation in excluding the rôle of the initial trauma, for the condition continued without a break to the development of definite organic signs; yet here also it is impossible to believe that a single trauma of the description given can by itself cause a progressive nervous, disseminated disease. That scattered islets of sclerosis of a quite peculiar kind in the neuraxis can be *caused* by a blow on the forearm is a proposition that cannot be entertained. Nevertheless, if we dismiss the hypothesis of mere coincidence, we are compelled, in fairness, to suppose that a latent organic nervous disease was "precipitated" by a relatively severe peripheral injury, incapable though we may be of framing any reasonable theory as to how such an injury might act.

I was consulted not long ago in the case of another young woman who happened to be sitting in a public restaurant when part of the metal framework of a revolving electric fan on a shelf above her became detached and fell right on her head from a height of about 6 feet. She undoubtedly received a severe shock and fright, was dazed and faint, and later on in the day was sick. She was at no time unconscious, but complained of much headache and giddiness. Her hat had kept her head from being cut, and there was no obvious evidence of direct injury.

When she was seen in consultation some weeks later, she presented unequivocal signs of disseminated sclerosis. This was surprising enough. The case, fortunately, was settled out of court, for as the girl declared she had been perfectly well up to the time of the accident, it would have been impracticable to dissociate it and the symptoms she complained of when examined. Nevertheless, medically and scientifically speaking, it would be impossible to prove that, in the absence of other etiologic factors, the injury caused the disease.

This case aptly illustrates the difficulty confronting the physician, since, as the patient was not examined by a neurologist before the accident, we do not in fact know that objective signs could not then have been found; further, when monetary compensation looms in view it is a trait in human nature to suppress anything that might tend to reduce the amount; and again, as spontaneous remissions occur in the disease under discussion, so do spontaneous exacerbations.

3. *Neurosyphilis, Including Tabes and General Paralysis.*—For years, controversy has raged on the question of tabes and general paralysis arising from or originated by trauma, but not, I venture to think, quite so much now as in the years before the discovery of the spirochete in the cortex and in the spinal fluid of neurosyphilitic cases. Various cases are on record, however, in which an apparent connection between trauma and the appearance of symptoms of general paralysis, for example, is sufficiently impressive.

In the absence of spirochetal infection no one, I suppose, will now admit that trauma, per se, can cause neurosyphilis in any of its manifestations. Can it actually initiate a morbid process on the part of the spirochete, in the sense that the latter otherwise would have remained forever latent and innocuous? Put thus, the question can scarcely be answered in the affirmative; yet who shall say that a direct negative represents the only possibility? It is the sort of question difficult either to prove or to disprove. Take a recent case:

A guard on one of our English railways was apparently in normal health, so far as ability to perform his duties was concerned, when his train, standing on the line, was run into by a second train and he was knocked from one end of his van to the other. There were no visible signs of injury of any kind when he was examined the same evening, complaining of "shock." He resumed his duties very shortly after, yet within a month was found to be making mistakes, to be waving his flag wrongly, and to be getting confused and incapable of explaining his erratic behavior. Further precise investigation revealed the early symptoms of general paralysis, and within six weeks of the "shock" he was under certificate in an asylum.

I submit that in this case we cannot say that the injury did anything whatever by way of aggravation of an already existing but unrecognized condition, or by way of "lighting up" a morbid process which was in abeyance. In view of the innumerable instances of the development of general paralysis without any trauma, we cannot suppose the speculation to have any degree of likelihood. In view, further, of the known remissions and exacerbations of the malady, the onus should rest on those representing the patient to prove, in a compensation case, that the condition was not due to an ordinary exacerbation from within. The modifications arising in the course of general paralysis are the result of intrinsic, not extrinsic, factors.

The so-called time factor is doubtless a somewhat elastic element in an alleged traumatic case. My contention is that unless it can be proved that a commencement of the symptoms of general paralysis, or of tabes, actually arises within forty-eight hours, say, of an accident, or that they are augmented within the same period, on the evidence of the same physician that has seen the patient on previous occasions, it is illegitimate to argue for a causal relation between accident and symptoms. In genuine trauma of the nervous system, do we not agree that the symptoms arise practically at once? Even in the case of delayed traumatic apoplexy, on which so much has been written of a contentious nature, is it not agreed that there is continuity of symptoms, however slight they be, from the very time of the injury? Since there must be some limit to the interval of time elapsing, after an alleged injury, ere symptoms appear, I suggest that *in the case of organic nervous disease it should be restricted at the widest to one week.* The neuropathologist is well aware that morbid histologic processes make their appearance at a much shorter interval after a genui[illegible] one week.

4. *Other Organic Nervous Diseases.*—Time will not allow me to deal with other organic nervous conditions, such as syringomyelia, progressive muscular atrophy, and ascending neuritis, in various clinical examples of which it has at one or other time been claimed that trauma has originated the process. The same claim has been made during the war in respect of traumatic dementia praecox and other forms of mental disease.

My general standpoint is that I am unable to understand how a single trauma can cause a progressive neural degeneration or abiotrophy; still less, of course, a progressive neural toxidegeneration. The former appears to me a physical impossibility. We are ignorant, it is true, of what the "span of life" of a neuronic system is in terms of biochemistry; we do not know under what circumstances the spinal degeneration of a Friedreich's case makes its appearance. But I am convinced that we should seek the solution in the biochemical field of intrinsic neural "life and death," and not glibly assign progressive degenerative processes to the action of a "shock"; even assuming a concussion so bad as to produce, on a small scale, fragmentation of myelin, we know, as a histologic fact, that scavengering takes place very promptly and that neural regeneration is equally sure. This being so, the view that trauma may on occasion cause neural abiotrophy of a progressive character is in my opinion opposed to the facts of neuropathology.

TRAUMA IN EPILEPSY

It has been asserted almost universally that trauma may cause epilepsy; I have never been able to understand why. Nothing is more common than for the physician to be told that the epilepsy of his patient is the result of a fall from a perambulator or of some other blow on the head. Were this, in actual fact, the real sequence of events, then every child should be epileptic, for which of them has not at one time or another had a knock on the head? The persistence with which epilepsy is attributed by parents to a fall or blow on the head—often trifling enough, too—is amazing, in face, it may be, of an overwhelming history of family nervous instability.

War is the great experimenter. In a recent communication, Dr. Aldren Turner has given figures derived from the ministry of pensions in England. Of 18,000 cases of gunshot wounds or other injuries of the head, occurring in warfare, some 800 patients have subsequently developed epilepsy; i. e., rather less than 5 per cent. The extreme importance of these figures will at once strike the reader. The percentage is approximately the same, according to Turner, as was observed in the Franco-Prussian war. Another set of figures is given by Holmes and Sargent: Of 610 cases of gunshot wound of the head, observed from two to eighteen months after the injury, thirty-seven, or 6 per cent., developed epilepsy. This percentage, without doubt, is much less than might have been expected if trauma, per se, has in reality the effect too readily attributed to it by parents and, indeed, by many medical men.

By way of amplification, it should be remembered that thousands of individuals with severe war injuries to the head—with fractures of the skull, laceration of brain tissue, paralysis, and all the rest of it—have not developed epilepsy in any shape or form. I associate myself entirely with Turner when he insists that "it is difficult to avoid the conclusion that something more than local tissue alterations is requisite for the production of the seizures of traumatic epilepsy, and the determining agent, in my opinion, is an inherited or inborn constitutional predisposition to nervous instability and epilepsy."

It seems difficult to come by statistics as to the family history and individual make-up of those soldiers who have suffered from traumatic epilepsy the result of war injuries; R. G. Gordon has obtained evidence of a neuropathic predisposition in 75 per cent. of his cases; in a series of my own, from the Pensioners' Clinic at the National Hospital, Queen Square, I have found similar evidence in 80 per cent.

We are not, therefore, justified in admitting more than that in a small minority of war cases of traumatic epilepsy the injury seems to have initiated the disorder in individuals previously healthy and unimpaired by heredity; in the great majority, the existence of the constitutional factor cannot be ignored or explained away; finally, the percentage of epileptic production among the head-wound cases is itself so small that it is abundantly evident that the predisposition is much more important than the head injury. So clear is this that we should be chary of certifying that a head injury has "caused" traumatic epilepsy in any single case; if the predisposition is obvious, its importance should be emphasized; and only when we have exhaustively scrutinized the family record with a negative result can we allow trauma per se to be the causa causans of the condition. In this respect I wish to direct attention to the frequency with which asthma is reported in family histories otherwise supposedly normal.

A young officer in the army consulted me recently because of three "attacks" he had had in the last six months. From the description given it seemed certain that they were epileptiform in character. I found no sign of organic nervous disorder or of rise of intracranial tension. The "attacks" were attributed by the parents to two tosses the patient had taken when steeplechasing; in the first instance he had fallen on the back of the head and been unconscious for two or three minutes. A roentgen-ray examination showed no definite changes in the cranial vault. I was assured confidently that the family history was in every way normal, but on further questioning I elicited the fact that the patient's father had suffered from asthma for years, and so had a paternal uncle.

To my way of thinking, this strain of neurosis was much more significant than the trauma, such as it was, and I cannot say that the latter caused anything at all. The interval between the second "toss" and the first fit was several months. While it would be equally difficult to prove that the head injury had no connection with the subsequent fits, the conclusion is that the experiences of war cases must lead us to attach prime causative significance to the constitutional make-up of the individual.

TRAUMA IN FUNCTIONAL NERVOUS DISEASE

When we approach the subject of the rôle played by trauma in neurosis formation, we enter at once on thorny ground. We find ourselves lost in the confines of a vast and inchoate group of morbid affections variously described as *traumatic neurasthenia, traumatic* neurosis, traumatic hysteria, etc. There appears to be neither etiologic, symptomatologic nor even terminologic agreement in respect of this class.

As a single illustration, we may select the question of spinal concussion. In a fairly long experience, I have seen all sorts of conditions classed as spinal concussion, or, alternatively, as "spinal irritation," whatever the term may mean. It is well that those who give certificates to state that their patient has sustained spinal concussion should have a real idea of what the symptoms are and to what extent, once more, the war has assisted us in this connection. Concussion cannot heighten function; it must reduce or inhibit it. In cases of genuine spinal concussion, we find diminution or loss of power in the legs, with diminution or loss of the deep reflexes, involvement in greater or less degree of the organic reflexes (rectal, vesical, sexual), but with little or no impairment of sensory conduction. The plantar reflexes may be also abolished pro tem, or may be either in flexion or in extension.

Corroboration of this clinical picture has been obtained experimentally by various workers, notably by Alan Newton, who made a series of experiments with Sir Victor Horsley, in 1913, on cats and apes. The spinal theca was exposed by preliminary laminectomy, and on it were dropped, from different heights, various weights. So sensitive is the spinal cord when no longer protected by the vertebrae that the effect of the dropping of a 50-gm. weight from a height of only 1 cm. was sufficient to abolish conduction in the cord. It produced no visible effect on the surface of the cord, yet, pathologically, small hemorrhages were to be found usually in the basal region of the posterior horns or in the posterior gray commissure, with scattered swellings of axis cylinders and disintegration of myelin sheaths. Newton was able to show experimentally that sensory conduction may remain after concussion that has quite abolished motor conduction. Compression for short periods, (two minutes or more), produced by gently placing a 50-gm. weight on the cord of a cat, brought about the same clinical and pathologic result.

When, therefore, we speak of spinal concussion in connection with accident cases, we can use the term advisedly only if the clinical picture is approximately as described above. I venture to say that in many of the traumatic cases of civilian life, facilely certified as spinal concussion, the diagnosis is erroneous.

A young man fell down an elevator shaft, 15 or 20 feet. He was badly dazed but not unconscious, and by good luck no bones were broken. Taken to a hospital, he was not detained; his reflexes there were noted as being present. He complained of pain in the back, at about the level of the last two dorsal vertebrae. When examined the same evening by his own physician, and again the next day, his chief complaint was of this pain. Eventually he claimed compensation and was duly certified to have had spinal concussion and to be suffering from the effects of it—this was not less than about four or five months after the fall. When I examined him subsequently, my questionnaire was directed to the points of importance outlined above, and I ascertained that there had been no reduction or abolition of power in the legs originally and no impairment of the rectal, vesical or sexual mechanisms. It was known, further, that the deep reflexes were active within an hour of the fall. In these circumstances I gave it as my opinion that there had been no spinal concussion and that therefore the patient could not be suffering from the effects of it.

If the injury is of so mild a character as not to give rise to recognizable signs of this kind, we have at present no certain means of detecting minimal degrees of commotio objectively. We do not know that they give rise to symptoms of a pathognomonic kind; we cannot point to any one, unequivocal, objective sign as of constant value. As far as my experience goes, I cannot distinguish an organic basis slight or minimal in degree from a nonorganic basis in respect of motor weakness and changes in the reflexes, though it is usually simple enough to determine the hysterical or neurasthenic factors otherwise. Thus, the statement that the knee-jerks, for instance, are "exaggerated" is valueless if it is thought to aid in differentiating between organic and functional cases.

There is, however, another aspect of the question that deserves fuller consideration than it commonly receives. Assuming a slight degree of spinal concussion or commotio, a moderate amount of myelin fragmentation, even minute hemorrhages, we must not forget that within a comparatively short time this tissue débris is scavengered away, while active regeneration is a normal reparative process. It follows as a perfectly definite histologic fact that, in slight or minimal degrees of spinal commotio, any tissue change in the organic sense that has occurred will vanish in due course and the cord be histologically normal again. But what of the patient's symptoms? What of the subjective complaints?

It stands to reason that, the presumed effects of the spinal trauma having been countered by reparative processes, the cause of the symptoms is no longer in existence. Yet every clinician knows how, months and years after a slight "spinal shock," the patient will still complain of the same old pains, weakness, shakiness and what not. It is obvious, then, that in many instances the condition changes definitely in the course of time; it is perpetuated by other pathologic mechanisms altogether than those originally implicated. If, *to give the patient the "benefit of the doubt,"* we admit the possibility of mild spinal shock not amounting to concussion, we are clearly prevented from allowing its effect to continue quite indefinitely. It is, in fact, actually the case that in innumerable instances *the accident is recovered from, yet the symptoms remain.* In Sir John Collie's words, such "claimants do not suffer from the accident but from the memory of it." It is the bounden duty of the medical examiner to insist that there is, in the cases of which I am now speaking, a time limit for the duration of any symptoms presumably due directly to minor spinal commotio. The conclusion to which consideration of all the circumstances drives us is that a neurosis supervenes and that in the great majority of cases this is prolonged by (1) conscious and (2) unconscious motives.

That a process of this description usually occurs has long been recognized; the Germans speak of a *Rentenkampfneurose*—a "fight-for-compensation" neurosis. The war has shown us a thousand times how the *genuine effects of concussion, cranial or spinal, pass off eventually, with a complete return to the normal; but if they persist, in the absence of evidence of objective change, it may be taken as an infallible rule that the condition has ceased to be one of concussion.*

1. *Conscious Motives.*—Possibly some have a natural hesitation in admitting that human nature is so constituted as to be prone to make financial profit out of personal trouble; yet the fact remains. Every experience points in this direction. Let me give the figures of three recent railway accidents on one of our biggest English railway systems.

Accident, January, 1915. Number of passengers [illegible] the two trains [illegible] collide[illegible] Number of [illegible]
Number who [illegible]
e. g., [illegible]

ing compensation for "shock," "neurasthenia," etc., who were medically examined, 275. Number who claimed similarly on account of "shock," and whose claims were settled without medical examination, 180. Total claims, 523, out of 693 passengers; total claims for "nerve shock," almost 66 per cent.

Accident, October, 1922. Number of passengers traveling in train, 73. Number of deaths, none. Number of actual and visible injuries, 3. Number who claimed compensation for "shock," "neurasthenia," etc., 41. Total claims for "nerve shock," over 56 per cent.

Accident, November, 1922. Number of passengers traveling in the two trains involved, 183. Number of deaths, none. Number of cases of visible and obvious injury, 27. Number of claims for "shock," "neurasthenia," etc., 87. Total claims for "nerve shock," over 42 per cent.

Taking these together, the average of three railway accidents, only one of which was severe, gives a percentage of 55 of those involved claiming damages for "neurasthenia"; i. e., one in every two passengers apparently suffered from traumatic functional nervous disease. Can we seriously believe that every other individual taken at random is neurotic? During the war, millions of soldiers were submitted to precisely the same warfare, the same stress and strain, the same shell bursts, the same bombardments; did 55 per cent. of them develop "shell shock"? Every one knows that the percentage was far less than that. The only conclusion we can draw, I submit, is that in many instances conscious motives connected with monetary compensation have a great deal to do with the simulation and exaggeration of symptoms almost invariably noticed among patients reputedly suffering from traumatic neurosis. The question of money to be obtained colors the whole situation, as the railway figures quoted prove up to the hilt.

2. *Unconscious Motives.*—We may take the facts as stated by other observers whose authority will not be questioned. In the matter of miners' nystagmus, the recent report published in England and contributed to by the late Dr. W. H. R. Rivers proves conclusively how potent is the unconscious motive (if it is in reality unconscious). Since the introduction of compensation, we learn that the prevalence of disabilities from miners' nystagmus has vastly increased; monetary considerations (for what other factor is there?) have led to the production and to the prolongation of disability to work.[1] Since the passing of the workmen's compensation acts in England, functional traumatic cases have been ever increasing. The victim of an industrial accident is now provided for by legislation; as Collie says, the accident is often regarded as a valid excuse for living at the expense of the former employer.

I might here cite case after case in which I have been personally concerned and in which simulation and exaggeration of symptoms have been grotesquely obvious. In each of these, medical certificates have been furnished by fellow members of the medical profession, substantiating the impossible claims of the individual concerned. This is the aspect of a serious situation that one must regard with concern. Through ignorance, or from press of work and shortness of time for examination, or because of personal friendliness with the claimant, the physician gives a certificate to which exception may justifiably be taken, or continues to furnish them at intervals, even years after the genuine effects of the trauma have vanished. And let it not be imagined for one moment that I am criticizing the general practitioner; on the contrary, I apply to myself the same comment on the urgent need for scrupulous care and faithful scrutiny of all the facts of every case. A certain individual, in connection with one of the railway accidents referred to above, went to a well known consultant in London and stated that he had been in the train and received a severe nervous shock. A certificate was given to the effect that he was suffering from "traumatic neurasthenia," and on the strength of this certificate he was awarded £200 compensation by the railway company. It subsequently transpired that he had never been in the accident at all. The moral is plain enough.

ABSTRACT OF DISCUSSION

Dr. Walter F. Schaller, San Francisco: Since 1914, we have had an industrial accident compensation law in California, and have been confronted by many of the problems Dr. Wilson mentioned. In almost any textbook on industrial accidents one will find support for the most conflicting medical opinions concerning the organic effects of trauma on the nervous system. The class of functional disorders that Dr. Wilson calls traumatic neurasthenias or traumatic hysterias I always designate as post-traumatic neurasthenias and post-traumatic hysterias. At the time of the earthquake in San Francisco no true hysterias or neurasthenias developed immediately following the shock, but sometime afterward, in the period of meditation and of suggestion, there were many. As a rule, after improvement from the traumatic symptoms there ensues a period in which suggestion, meditation or the question of compensation determines the course of the neurosis, and the neurotic symptoms increase rather than decrease. The tendency of symptoms due to traumatic organic structural changes in the nervous system is to decrease. In a case of cerebral hemorrhage due to vascular disease there is a spontaneous tendency to betterment; in a case of brain hemorrhage from trauma in which there develops a post-traumatic neurosis there is a tendency to aggravation as soon as the neurosis is established. It has never been proved that a post-traumatic neurosis has any organic basis from a macroscopic or microscopic examination of the nervous system. To quote a case briefly examined for the industrial accident commission of this state: A man had a more or less severe head trauma. After an interval, he showed unmistakable signs of a neurosis, evidenced among other symptoms by a sensory and sensorial hemianesthesia. The man subsequently died of an intercurrent affection. The necropsy showed a hemorrhage in one frontal lobe. Those who had felt that all the symptoms could be explained by the organic lesion felt that a mistake had been made in the diagnosis, but the typical hysterical symptoms could not have been adequately explained by the organic lesion.

Dr. Thomas J. Orbison, Los Angeles: Is it not a fact that it seems to be a universal attribute of the human race to set up a "straw man" in order to explain something that they cannot quite understand? It does sometimes take a war to expose them. We are all taught to judge *a priori.* Is it not much the same as when a parent comes gripped by fears of prenatal influences? A mother confided to me that her daughter, who was born with stumps of fingers on both hands, certainly had come to that terrible tragedy because when she herself was just about to be in labor, she had been out driving and the horses had run away and she had wrapped the reins around her fingers and had received quite a fright. Shortly after that the baby was born without fingers. It was certainly a remarkable coincidence. She was quite crestfallen, and I hurt a family legend when I informed her that those fingers had certainly been absent long before that drive. In these cases I think that there is some element of reason for their attributing an unhappy effect to some recent cause, as to a blow on the head, or a fall, or an accident of some sort as a contributing cause, in almost every case of epilepsy, and certainly in most cases of multiple sclerosis, is it not remarkable that those falls do not come oftener, and is it any wonder that one of those falls comes shortly before the disease itself is identified, and is, therefore, blamed by the patient and his family? My experience has been that the pathology lies in the money sense and not so much in the common sense of the parties involved.

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[1] Since this paper was written, we learn from the second report of the Miners' Nystagmus Committee of the Medical Research Council that "not only the number of fresh claims but the average duration of incapacity has risen enormously, facts which . . . have no relation whatever to the actual prevalence of the disease, but solely to the facilities for obtaining compensation" (Lancet 2:293, 1923).

Dr. David S. Booth, St. Louis: Having been connected with railroads for thirty-seven years, I have had a great deal to do with these cases. I saw one physician in court who, to prove paralysis, said that the third, fourth, fifth, sixth and seventh nerves all came out on the temporal region of the head somewhere, he didn't know exactly where, and yet that testimony had more weight with the jury than that of the experts. This is a serious matter. We not only have that kind of people to fight, but also something else. I once had quoted to me from one of our leading textbooks—ordinarily they do not get before the court, but if a lawyer is smart, he often manages it—that the traumatic neuroses are "serious and disabling conditions." I not only disagreed with that, but I wrote the author in regard to the matter and he explained it by stating that the book had been written for physicians with judgment and not for courts. Nevertheless, courts were using it, and yet that has never been corrected in later editions of the work. When these things appear in textbooks, and when the lawyers can use them in court, we see what a small chance we have in doing anything in these cases in which we know that the "gold cure" is often the only thing that will act—will completely cure some of our most disabling cases. A case of that kind was that of a man in a distant state who was unable (?) to turn in bed and who, I think, I was able to show was not paralyzed. He was unable (?) to hold his urine, for which he wore an empty urinal. I catheterized him and obtained 2 or 3 ounces of urine. The muscles grasped the catheter (rubber) so that I was fearful I would break it in withdrawing it. Nevertheless, the railroad acknowledged liability, and rather than have a case of that kind go into court, they settled with him. A local physician wrote me a few weeks afterward that the claimant had gone into the cigar business. When the physician visited his store, "there he was, walking around in the image of God just as though nothing had happened." When one gets such cases repeatedly, one certainly becomes skeptical.

Dr. C. E. Reynolds, Los Angeles: This sort of paper has a particular function in giving us a sense of proportion. But I think, on the other hand, with lesser diagnosticians, there is an element of danger in the bias that is strongly toward regarding most of these cases as functional. I was interested in Dr. Wilson's case of the girl who had a blow on the top of the head, because I had a precisely similar case with a different ending. A girl had a blow on the top of her head from a heavy screen falling. The case was diagnosed as hysteria by the corporation physicians in spite of the fact that she had a bulging eyeball and some haziness of the nasal margins of the disks. She had some anesthesia which was rather suggestive of hysteria, but she went rapidly down hill for several months. In consultation with Dr. Charles Lewis Allen and Dr. E. H. Jacobs of Los Angeles, I turned down a bilateral flap across the top of the head and found a well marked arachnoid cyst. She promptly recovered. What would have been the eventual result if she had been allowed to drift, I do not know; but it probably would have led to some degeneration. And so, whereas this paper gives us a broad view of the subject, I think that, unless men are such expert diagnosticians as Dr. Wilson, there is a certain element of danger of erring on the functional side.

Dr. S. A. Kinnier Wilson, London, England: We know well how large a field this is, and how can one touch [illegible] fringe of it? I should have spoken in vain if I had [illegible] one the impression that I was seeking to be [illegible] only seeking light in the matter, not [illegible] I entirely associate myself with the [illegible] It is just as great a mistake to suppose [illegible] nothing as to suppose that trauma [illegible] Nevertheless, one has to endeavor to get some [illegible] which to go, and, above all, as has been said, to take a broad view of the very difficult and very thorny subject. I am not to be regarded as speaking pontifically in regard to the question of paralysis agitans and trauma. I do not want to be quoted in any sort of excathedra way. But obviously, I cannot suppose for a moment that paralysis agitans—a notoriously degenerative progressive organic nervous disease—can be caused by any trauma whatever; that it is logically impossible that a progressive disease should be caused by a trauma. The trauma acts once and no more. Trauma is a question of seconds or minutes, but how that can act for years is entirely beyond me. I would say, therefore, that I should certainly take the position that I could not associate trauma and paralysis agitans in any etiologic connection whatever.

MÉNIÈRE'S SYNDROME CAUSED BY ALLERGY

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The symptom complex known as Ménière's syndrome has been correctly attributed, I believe, to a lesion involving the vestibular nerve apparatus. To produce this syndrome, the lesion may involve either the labyrinth or peripheral end-organ, the primary neuron or vestibular nerve proper or its tracts, or the central nuclei in the medulla or midbrain.

Several different primary causes, such as acute infectious diseases, syphilis, hemorrhage into the labyrinth, tumors and abscesses, and traumatic injuries, may result in a lesion that can have this effect. I have observed the syndrome in two patients with severe allergy in whom no other adequate cause for the illness was found. Since, in each case, relief was obtained both by the use of epinephrin and by avoidance of substances to which the patients were sensitive, and since the symptoms were reproduced during well periods by the use of foods to which they were hypersensitive, it seemed justifiable to include allergy among the primary causes of the symptom complex known as Ménière's syndrome.

REPORT OF CASES

Laboratory examinations, including Wassermann tests with cholesterinized antigen and one unit of complement, were negative.

Roentgen-ray examinations, including the nasal sinuses, mastoids and gastro-intestinal tract, were negative. Roentgenograms of the teeth showed one small granuloma.

Functional tests of the ear, including Bárány's, made by Dr. Sam E. Roberts, were negative except as follows: The vestibular tracts were all open, but responses both for nystagmus and past pointing were subnormal. Cochlear tests showed a reduction of about one fifth for bone conduction and for high tones.

Intracutaneous tests with many of the fruits and vegetables gave very marked delayed reactions. The most marked tests were obtained with peas and beans. Intracutaneous group tests with extracts of all the common meats, fish, fowl, eggs, dairy products, nuts, condiments, grains, pollen, animal hair and feathers were negative. The tests were followed after several hours by a very severe attack of Ménière's symptoms.

The patient, during an attack, was given 1 c.c. of epinephrin subcutaneously, with marked immediate improvement in the symptoms. She was given 0.75 c.c. of epinephrin subcutaneously each morning and evening for two weeks thereafter, with the result that she had no more severe attacks and fewer mild attacks. She was put on a diet free of fruits and vegetables for a period of two weeks, and epinephrin was omitted. The result was a period of almost complete freedom from symptoms except very slight dizziness occasionally.

She was then allowed a meal with vegetables, to which she had given positive skin tests. After six hours a very severe attack of dizziness, associated with hives, recurred.

A diet almost free of protein, but containing a few vegetables, gave no relief whatever; in fact, it was discontinued at the patient's request after two days.

Case 2.—A man, aged 43, came to me complaining of seasonal hay-fever and asthma, and attacks of dizziness and vomiting. His father was subject to hay-fever. A brother was subject to seasonal hay-fever and asthma. A sister was subject to perennial asthma. The past history was negative except for earache in childhood. The patient had been subject to autumnal hay-fever for about twenty years. For the last fifteen years this had been associated with severe autumnal asthma, which at times confined him to bed for several weeks at a time unless he left this climate. For five years he had been subject to attacks (Ménière's syndrome) which would start by profuse sweating, followed after about one minute by roaring in the left ear, followed in about three minutes by dizziness and vomiting. Objects would seem to whirl around during this period. The patient was made worse by the least movement of the head. During these spells he was forced to keep absolutely motionless for periods of from one-half hour to four hours, when the attacks would gradually subside. Very slight dizziness would persist for about one week after the attack, after which he would be relatively well for a time. The attacks occurred regardless of time of the year, time of day or night, and regardless of geographic locality. In all, he had had about fifty severe attacks, and for the past several months he had had slight dizziness and uncertainty in his feelings almost constantly.

The severe attacks had borne no marked relationship apparently to the seasonal hay-fever and asthma. On careful questioning and careful observation for one month, it was found that he could bring on severe attacks by the eating of spinach, vinegar and certain fruits, especially prunes. He remembered then that his most prolonged and severe attacks occurred when eating prunes for the relief of constipation.

The physical examination was negative except for deviation of the nasal septum to the right and partial deafness, with increased bone conduction in the right ear. Other examinations, including the eyes, throat, chest, abdomen and prostate, were negative or of no interest in this connection.

Laboratory examinations, including Wassermann tests with cholesterinized antigen and one unit of complement, were negative.

Roentgen-ray examinations, including the nasal sinuses, mastoids, teeth, chest and gastro-intestinal tract, were negative.

Functional tests of the ear, including Bárány's, made by Dr. Roberts, were negative except for reduced hearing with increased bone conduction on the right side and subnormal responses for nystagmus and past pointing. The vestibular tracts were all open.

Intracutaneous tests made with all the common foods and air-borne allergens showed the following: Group tests with the common vegetables, fruits and nuts, gave very strong positive reactions. Most marked was the reaction obtained with an extract from spinach; tests with the common air-borne allergens were positive for some of the furs, dusts, and spring and fall pollens; positive ophthalmic tests were obtained only with the pollen of marsh elder, Spanish needle, pigweed and small ragweed; intracutaneous tests and ophthalmic tests made with other air-borne allergens were negative. Intracutaneous group tests made with extracts of all the commonly eaten meats, fish, fowl, eggs, dairy products, grains and with bacterial extracts gave negative or only slightly positive reactions.

On two different occasions the patient had a severe attack of dizziness and nausea, which started about six hours after the use of intracutaneous tests with extracts to which he reacted positively. The attacks lasted about twelve hours, and were then markedly relieved by epinephrin. This result was later obtained with the use of spinach extract alone.

At an earlier date, severe spontaneous attacks had also been relieved within fifteen minutes by the subcutaneous injection of 1 c.c. of epinephrin (1:1,000 solution). The asthmatic attacks were likewise relieved by epinephrin, but a little more time was required.

The patient was put on a diet free of all fruits, vegetables and nuts; that is, on a meat, dairy, egg and wheat diet. During a period of thirty days he was practically free of attacks, although he felt a slight dizziness at times. He was steadier on his feet at all times, however, and noticed a very marked reduction in tinnitus and in the subjective feelings, which formerly were very disagreeable and were often followed by the symptoms described as Ménière's syndrome.

At the end of one month he ate spinach with vinegar as a test. It was followed within six hours by dizziness, which required epinephrin for relief.

At the end of this study, the pollen season began and during the season and during the pollen treatment that was given he was subject to attacks of asthma and one slight attack of Ménière's syndrome even when on a diet free from vegetables and fruit. The attack was believed due to a treatment with pollen extract which he had received.

COMMENT

In the two case histories reported here, these facts are of interest:

1. In each case the patient had the classical symptom complex known as Ménière's syndrome.
2. In each case the patient had a marked case of allergy.
3. In each case the Ménière complex was relieved by epinephrin.
4. In each case the Ménière complex was partly or wholly relieved over several weeks' trial by the avoidance of foods to which the patients gave positive intracutaneous tests.
5. In each case Ménière's syndrome was reproduced during a well period by the intracutaneous injection of extracts of the foods to which the patients showed skin hypersensitiveness and by the eating of such foods.

This, it seems to me, is convincing evidence that allergy is one of the several causes of the symptom complex known as Ménière's syndrome.

Reactions of allergy may be divided roughly into two classes: (1) contact allergy, that is, reactions which occur as a result of direct contact between an allergen and a surface to which it is hypersensitive; and (2) general allergy; that is, symptoms which occur as a part of a general reaction after an allergen has been absorbed and distributed by the blood.

In both of the cases reported, the reaction with symptoms that were characteristic of Ménière's syndrome occurred as part of general reaction to foods which were either eaten or injected intracutaneously. That these symptoms could occur as a result of a contact reaction would seem theoretically improbable, since in this type of allergy it is rare that an offending allergen is absorbed in quantity sufficient to give rise to a general reaction. In these patients, symptoms occurred apparently only after the eating of foods which could be absorbed in quantities sufficient to give rise to general symptoms.

SUMMARY AND CONCLUSIONS

In this paper I have reported the history of two patients subject to repeated acute attacks of dizziness, tinnitus, nausea and vomiting, which were classical examples of the symptom complex known as Ménière's syndrome.

Each patient had a chronic history of allergy, each was proved hypersensitive to foods, each was relieved both by the use of epinephrin and by the avoidance of the foods to which they had skin hypersensitiveness, and in each the symptom complex was reproduced during a well period both by the intracutaneous injection of extracts of the foods to which they showed skin hypersensitiveness and by the eating of such foods.

It is suggested that allergy is one of several important causes of the symptom complex known as Ménière's syndrome.

Note.—Since sending this paper for publication, I have observed three additional patients who were subject to attacks of dizziness associated with asthma or hives and were definitely allergy cases. The condition therefore is not extremely rare.

Waldheim Building.

MONGOLIAN IDIOCY IN BOTH TWINS

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CHICAGO

The occurrence of mongolism in twins seems worthy of report not only because of its great rarity but because of its possible bearing on the question of whether an endogenic or exogenic factor is involved in the etiology of this anomaly.

REPORT OF CASE

The parents of the twins affected with mongolian idiocy were healthy, very intelligent and without any inherited taint. Neither of them was syphilitic or alcoholic. The mother at the time of conception was 20 years of age, and the father, 30½. The pregnancy was without any disturbance. The twins were the first born of the family; the three other children, aged 7, 4¾, and 1½ years were perfectly healthy and intelligent.

The twins were born, March 21, 1915, at the end of the eighth month of gestation; the first infant, weighing 5 pounds, 12 ounces (2.6 kg.), was delivered by forceps; the second infant, weighing 5 pounds, 10 ounces (2.5 kg.), was born spontaneously a few minutes later. They were first seen by me on account of lack of development, when 15 months old, in consultation with Dr. W. G. Lee of the Cook County Hospital and Dr. T. W. Lewis of the Rush Medical College.

The two twins presented the same striking condition, at the first glance recognizable as mongolian idiocy with its characteristic features: slanting eyes; epicanthus, flat nose, flat face, brachycephaly, open fontanel, marbled, flabby skin, very marked hypotonia of the muscles, and extraordinary mobility of the joints. No teeth had erupted. The genitals were small; the left testis of the first twin had not descended. The twins were unable to stand or sit, and manifested a striking lack of mental development. Thyroid therapy was instituted, but despite this and the best care amid hygienic surroundings on the lake front, the development of the twins, who were seen by me repeatedly throughout the following years, was very slow physically as well as mentally. The tongues became fissured (lingua scrotalis); the teeth erupted slowly and irregularly. At the age of about 4 years they learned to walk and could utter a few indistinct words. Later they were refused admittance to the public school. While formerly apathetic, they became lively in the last years. In April, 1922, they had scarlatina and recovered. Soon afterward, the first twin suffered from infected tonsils and adenoids with chronic fever, which continued for months after the removal of the tonsils and adenoids, with short intervals. May 1, 1923, he succumbed to bronchopneumonia. No postmortem examination was permitted. This boy was never able to speak, but uttered a number of sound combinations intelligible only to his parents.

The other twin developed physically and mentally better. In June, 1923, he was able to speak a number of words, even some short sentences, though they were intelligible perhaps only to his parents and to the other children of the family. He loves music. He still wets the bed at night, and he is small for his age, measuring in height 45 inches (114 cm.), his 7 year old sister being half a head taller and much stronger; the 4¾ year old brother being only 1 inch (2.5 cm.) smaller than he. The right half of the face is conspicuously smaller than the left. The circumference of the head measures 19½ inches (48.7 cm.). The fissured tongue tends to protrude between the lips. The set of milk teeth is perfect; the two permanent lower incisors had erupted behind those of the temporary set. He is about to be sent to a private institution for mentally subnormal children in Minnesota.

INCIDENCE OF MONGOLIAN IDIOCY AMONG TWINS

A search in the literature reveals the extremely rare incidence of mongolism in both of twins, only two instances being described, that of Hjorth,[1] the twins being "of the same sex"; and that reported by de Bruin,[2] the twins being boys, as in my own observation.

Halbertsma[3] tabulates nine instances published of the occurrence of mongolism in only one of twins, and adds five new cases. With the instances of Clay,[4] McLean[5] and McKee,[6] the total in this group is brought up to seventeen.

Very striking is the fact that among all the twins positively known to be double ovum twins, either by their difference of sex or by direct inspection of the placenta and membranes, only one is affected with mongolism, and in no instance known so far were both affected. It would seem improbable that in all these (twelve) cases an exogenic factor should have affected only one of the double ovum twins and allowed the other to escape uniformly, since most probably both would have suffered to some extent. Yet double mongoloids are extremely rare; and in the three cases recorded the patients were of the same sex, which is perhaps not merely accidental but simply the expression of the fact that they are one ovum twins. The extreme rarity of such single ovum twin mongoloids would not be surprising were we to recall that the frequency of single ovum twins in comparison to double ovum twins is 1 to 7.16, according to Ahlfeld.

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[1] Hjorth, N.: Tidsskr. f. Abnormvaesenet. 1906, No. 9.

[2] De Bruin, quoted by Halbertsma (Footnote 3).

[3] Halbertsma, T.: Nederlandsch Tijdschr. v. Geneesk. **2**: 22 (July 1) 1922.

[4] Clay, H. T.: Arch. Pediat. **39**: 726 (Nov.) 1922.

[5] McLean, Stafford: Mongolian Idiocy in One of Twins, J. A. M. A. **78**: 12 (Jan. 7) 1922.

[6] McKee, quoted by Swanberg, H., and Haynes, H. A.: Case of Mongolism in One of Twins, Arch. Neurol. & Psychiat. **1**: 742 (June) 1919.

We may readily comprehend that an intrinsically abnormal ovum or a normal ovum fertilized by an abnormal spermatozoon by division should result in both twins being mongoloids; these, of course, being of the same sex. And again it would appear improbable that of two independent ova fertilized, both should yield a mongoloid from endogenic causes; though this extremely remote possibility must be admitted in consideration of a rare familial occurrence of mongolism, as the cases cited by Comby[7] and Pardee.[8] Under such conditions the twin mongoloid could of course be also of different sex; but such an occurrence, as accentuated by Halbertsma, has not yet been seen. The observations here recorded seem to point to an endogenic factor existing in one of the gametes in the etiology of mongolism. I wish to invite the interest of the obstetricians to these problems, the solution of which may be further advanced by the determination at birth of the monozygotic or dizygotic nature of twins under discussion.

SUMMARY

Mongolian idiocy occurred in twins, the first born of young, healthy parents.

The occurrence of a mongolian idiot with a normal twin has been observed only in double ovum twins, as far as known. Mongolism in both twins has been described only in twins of the same sex. They are probably single ovum twins.

The conception of mongolism being due to an endogenic factor seems to find support in these observations.

4557 Broadway.

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[7] Comby, J.: Méd. mod. 2:835, 1921.

[8] Pardee, I. H.: Two Cases of Mongolian Idiocy in the Same Family, J. A. M. A. 74:94 (Jan. 10) 1920.

A NEW ALKALINE SOLUTION OF IODIN FOR USE IN THE GRAM STAIN

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LOS ANGELES

The method of differential staining first described by Gram in 1884 has become an important means of classifying bacteria and, as in the case of the gonococcus, forms an important factor in their morphologic recognition.

The exact reaction or conditions governing the retention or loss of the violet dye, as a result of which bacteria are classed as gram positive or gram negative, is not entirely clear, nor is it definitely known whether the bacterial protein (protoplasm) or the bacterial cell wall is mainly concerned in the retention of the dye.

According to Wells,[1] the gram positive reaction is due to the formation of an iodin-pararosanilic-protein compound not easily dissociated by water, and he suggests that the cell wall of gram positive organisms is impermeable to the action of decolorizing agents.

The fact that the disintegration of gram positive organisms renders them gram negative, as shown by Benians, and that extraction by lipoid solvents has the same effect, as shown by Eisenberg, seems to indicate that the character and integrity of the cell wall is an important factor in determining the reaction to the stain.

Be that as it may, the fact remains that the method forms a routine part of the study and identification of bacteria and, as in the clinical identification of certain organisms, such as the gonococcus in the stained smear, is extensively used.

Unfortunately for the simplification of an often complex problem, it is now known that variations of technic, such as the length of time the solutions are allowed to act, variations in the age of the culture and the viability of its individual components, and other factors, may all combine to produce anomalous results with this stain; and while the bacteriologist depends on other factors combined with or independent of the reaction to Gram's stain for his identification of bacteria, the same is not true to the same extent for those using the stain as an infrequent clinical procedure. Anomalous reactions, therefore, may be responsible for annoying errors of misinterpretation.

The confusing reactions generally encountered during the World War, when supplies of foreign dyes were interdicted, led to a study of dyes and reagents produced in America and the subsequent evolution of various modifications of technic.

Undoubtedly, some of the earlier American made dyes were not quite suitable for the purpose; this difficulty, however, has now been overcome, and American dyes are now the equal of any foreign products.

One of the significant modifications of the technic of Gram staining devised to eliminate confusing and anomalous reactions was that described by Burke,[2] who demonstrated that the addition of a small amount of sodium bicarbonate to the slide before the application of the iodin solution resulted in clear cut pictures without discordant results, and who proposed this as an additional step in the technic, based on the assumption that the alkali probably neutralized any acid in smears made of secretions, or else that it increased the penetration or concentration of the gentian violet.

He was unable, however, to explain definitely the reason for the effect of the alkali, but this now appears to be brought out by the work of Sheppe and Constable,[3] who demonstrated that, when exposed to light and heat, the iodin solution used in the stain may become acid, owing to the formation of small amounts of hydriodic acid, and that acid exercised a decolorizing effect on normally gram positive bacteria. They therefore recommend that the iodin solution be kept in dark bottles in the cold.

Following the description of Burke's method, I endeavored to combine the sodium bicarbonate with the gentian violet solution in order to lessen the number of steps in the technic, but found that a somewhat troublesome granular precipitate was apt to form on the slide as a result. I then modified the iodin solution by the addition of sodium bicarbonate and found that this alkalin solution gave satisfactory results and, seemingly, remained stable, showing no deterioration after some months.

The effect is due, apparently, in the light of Sheppe and Constable's work, to the neutralization of the acid formed in the iodin solution and, perhaps, to any that may be present in smears made from acid secretions.

The modified formula for the iodin solution is: iodin, 1 gm., and potassium iodid, 2 gm., dissolved in distilled water, 240 c.c.; after the iodin and potassium iodid are dissolved, 60 c.c. of 5 per cent. aqueous solution of sodium bicarbonate is added.

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[1] Wells, H. G.: Chemical Pathology, Ed. 2, Philadelphia, W. B. Saunders Company, p. 105.

[2] Burke, V.: Notes On The Gram Stain With Description of a New Method, J. Bacteriol. 7:159 (March) 1922.

[3] Sheppe, W. M., and Constable, M. G.: An Unusupected Source of Error in the Gram Stain, J. Lab. & Clin. Med. 8:757 (Aug.) 1923.

CHEST DEPTH AS AN INDEX OF BODY WEIGHT*

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AND
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BOSTON

When a physician wishes to tell a person what his weight should be, he should measure not only the height (length of body frame) but obviously also some depth (width of bony frame). As to the place of measurement, one naturally thinks of the pelvis and thorax. The pelvis we have not considered. The chest girth we became inclined to discard,[1] and instead began to collect measurements of body weight and several chest diameters.

The subjects for our new evidence were 100 candidates for the varsity football team remaining on the squad after the preliminary cut. As in our prior series, these men were of the usual college age group of from 18 to 22 years, all of better than average physique, and organically sound. The athletic character of this group may theoretically have to be considered in interpreting the observations. The technic is as follows: The weight was taken stripped, as also the caliper diameters, three in number.[2] The shoulder width (here abbreviated as S) was taken, with the subject erect, between the outermost edges of the acromial processes, not between the heads of the humeri with their interfering deltoids. The transverse diameter (T) between the outermost edges of the ribs at the level of the base of the ensiform cartilage was recorded as the mean between the measurements at extreme inspiration and expiration. The depth anteroposteriorly (D) was taken in the same plane, horizontally, and in the same phases of respiration. The xiphoid level we preferred to the nipple level (1) in pursuance of the Geneva Anthropological Agreement, and (2) because we found lesser interference by muscles. Each hundred measurements were plotted against the weights corresponding, and then, as a more definite matter of record, we calculated the coefficients of correlation. The resulting constants are shown in the accompanying table.

Statistical Constants

Measurements, Net	Symbols	N	Means (Averages) M ± p. e.	Standard Deviations σ ± p. e.	Coefficients of Variation C. V.	Coefficients of Correlation Between Weight and Body Measurements r_{wx} ± p. e.
Weight, pounds	W	[illegible]	[illegible]	[illegible]	[illegible]	....
Shoulder width, biacromial, cm.	S	[illegible]	[illegible]	[illegible]	[illegible]	+[illegible] ± [illegible]
Transverse chest diameter, base xiphoid, midrespiration, cm.	T	[illegible]	[illegible]	[illegible]	[illegible]	+[illegible] ± [illegible]
Depth of chest, anteroposterior diameter, base xiphoid, midrespiration, cm.	D	[illegible]	[illegible]	[illegible]	[illegible]	—[illegible] ± [illegible]
	D	[illegible]	[illegible]	[illegible]	6.24	—[illegible] ± [illegible]
	D	[illegible]	[illegible]	[illegible]	[illegible]	—[illegible] ± [illegible]
	W	[illegible]	[illegible]	[illegible]	[illegible]	....
	W	[illegible]	[illegible]	[illegible]	[illegible]	....

CONCLUSIONS

1. Shoulder breadth and transverse chest width do not parallel body weight.

2. Dorsoventral depth of chest (D), a nearly bony measurement, exhibits a considerable correlation with a person's weight (W). This is indicated by Pearson's coefficient r_{WD}, which is 0.55 (absolutely perfect parallelism would yield 1.00).

3. A plot of D against W for the hundred subjects revealed ten exceptions distinctly apart from the swarm of the remaining ninety. A trend line drawn through these ten variants, however, looks about parallel to the trend of the main swarm. The plot is striking, but is not reproduced at present, because the series is too small as yet to explain whether the phenomenon is accidental or significant. Rough averaging of the various measurements on these ten persons indicates these group peculiarities: unusually deep chest; unusually heavy weight for height, i. e., relatively short stature for weight; likewise, relatively short stem length (sitting height, trunk) and relatively short transverse chest diameter. These peculiarities suggest that the deep chest is a compensation for certain deficiencies, to afford the ample chest capacity which would be expected in conformity with the high vital capacity of the lungs known to be characteristic of physically vigorous persons. Whether this variant group merits special study can be better determined later with additional evidence, as also the precise slope of a diagram to predict weight from chest depth. In any case, the cardinal conclusion from the evidence in hand is that the chest depth may be a real accessory to the height in predicting what a man ought to weigh; these diameters also may be useful in studying shape of the chest or trunk in relation to constitutional medicine such as the action of the diaphragm or the differential diagnosis between disease of gallbladder and stomach.

4. Since D and T tend to vary inversely, perhaps as a physiologic counterpoise, as noted in the preceding paragraph, their product D × T has been plotted against W. The distribution of the points is more regular than in any of our other plots, both as regards solidity of the swarm and as regards scarcity of extreme variants. (A plot Height × Depth × Transverse against W looks equally satisfactory, but, being more complicated, may be dropped from consideration.) The coefficient between W and D × T, however, we have postponed computing until evidence shall be available to show whether these diameters remain fairly constant with gain or loss in body weight. Such evidence is being analyzed by H. F. Root and W. R. Miles.

These conclusions make us cautious about the practical usefulness of the results until we shall have assembled further data.

31 the Fenway.

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* From the Department of Hygiene, Harvard University.

[1] Parmenter, D. C., and Gray, Horace: Chest Measurement as a Gage of Body Weight, J. A. M. A. 79: [illegible] (Dec. [illegible]) [illegible].

[2] International Agreement (Geneva, [illegible]) for the Unification of Anthropometric Measurements, reported by Duckworth, W. L. H.: Am. J. Physical Anthropology 2:61 (Jan.-March) [illegible]; and Hrdlička, Aleš: Anthropometry, Philadelphia, 1920, p. 29.

Rural Health Campaigns.—Mental hygiene is important in rural communities, and sanitation work and malaria control are entitled to all of the militant enthusiasm of the various other campaigns.—W. S. Draper: *Public Health Rep.* **35**: [illegible] (Nov. [illegible]) 1920.

GENTIAN VIOLET IN STAPHYLOCOCCUS SEPTICEMIA *

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AND
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Churchman[1] has demonstrated that gentian violet will inhibit the growth of most gram-positive bacteria. This fact has been applied to the treatment of infected joints,[2] empyema,[3] open wounds,[4] otitis media,[5] skin infections[6] and other conditions. It has been found[7] that gentian violet in 1:1,000,000 dilution will inhibit the growth of staphylococci. A dilution of 1:50,000 has no deleterious effect on white blood cells that have been exposed to it for two hours.[8] A 1:20,000 dilution has no effect on growing tissues.[9] We have given 10 mg. per kilogram of body weight intravenously to rabbits (calculated dilution in the body fluids of 1:70,000), with no effect except instant staining of the mucous membranes and sclerae. The staining later disappeared.

We therefore felt justified in injecting gentian violet intravenously into an infant, aged 15 months, suffering from staphylococcus septicemia. This patient had been admitted to the wards three weeks previously suffering from severe bacillary dysentery and otitis media, and had later developed multiple large staphylococcus abscesses and staphylococcus septicemia. His condition had gradually grown worse, his temperature, which had ranged from 101 to 103 F., had finally reached 106, and he was apparently moribund. *Staphylococcus aureus* had been demonstrated in two blood cultures made during the three days preceding the first injection. There were about ten colonies per cubic centimeter of blood. Three injections of a 0.25 per cent. aqueous solution of gentian violet[10] were given at twenty-four hour intervals. The first dose was 5 mg. per kilogram of body weight. The calculated resulting concentration of the dye in the body fluid was 1:140,000, assuming the fluid content of the body to be 70 per cent. of the body weight.

The white blood cell count, which was 22,000 at the time of injection, was reduced to 10,000 twelve hours later, but returned almost to the original count during the next twelve hours. Because of the possibility that the reduction in the white blood cell count was due to the effect of the dye in that concentration, the amount was reduced, and the second and third doses consisted of 3 mg. per kilogram of body weight. Blood cultures made immediately preceding the second and third injections were sterile. After the third injection the patient's appearance had improved, his fever was reduced, and the white blood count had decreased. We therefore discontinued the administration of gentian violet.

The child, whose condition was wretched at the time the injection of gentian violet was begun, gradually improved. He gained weight, the abscesses healed, and he was discharged from the hospital two months later, entirely well.

Clinical Notes, Suggestions, and New Instruments

ACUTE APPENDICITIS AND INTUSSUSCEPTION IN INFANCY *

Lewis D. Hoppe, M.D., Atlanta, Ga.

Ileocecal intussusception is not an unusual condition in infancy, but the occurrence of acute appendicitis complicating this is worthy of note.

REPORT OF CASE

History.—M. O., a white girl, aged 8 months, referred to me, April 29, 1923, was an only child; she was born at full term and had never been sick until the present time. She had been breast fed since birth at irregular intervals, and for the last months had been allowed to have fruits and cereals. On the morning of April 27, the infant was given a small piece of uncooked apple. The next morning at 8 o'clock she vomited a large amount of milk taken shortly before. About one hour later she vomited again and was then given an enema. Only a small amount of fecal matter was returned. During the day she was irritable and restless, but did not appear to be acutely ill. At no time did she show any signs of acute pain. Vomiting continued and became progressively worse, resisting all the household remedies tried by the mother. Toward night she became drowsy, refused all food, and was aroused only by emesis. I saw her next morning.

Physical Examination.—The infant was well developed and slightly undernourished. The eyes were sunken, and there was a moderate amount of dehydration of the skin. A toxic state or condition of shock was manifested by the drowsy, stuporous condition.

A routine examination of the various organs presented nothing abnormal except for the abdomen. This was slightly sunken. There was no rigidity or tenderness. The percussion note was tympanitic throughout. Just to the right and at the level of the umbilicus and extending toward the flank and then upward toward the liver was a hard, sausage-shaped mass, about 1 inch in diameter and 4 inches long. This mass could not be felt distinctly by rectum.

A warm soap-suds enema was given, care being taken not to exert any hydrostatic pressure, because of fear that gangrenous changes might have taken place. A small quantity of mucohemorrhagic fluid was expelled, together with two small pieces of apple peel. The rectal temperature was 100.2 F.

The diagnosis of ileocecal intussusception was made, and immediate operation was advised. It was not considered wise to wait for examination of the blood and urine.

Operation and Result.—The operation was performed one hour later by Dr. B. H. Wagnon. Under ether anesthesia, the abdomen was opened through a right rectus incision. When the peritoneum was opened a few cubic centimeters of straw colored fluid was seen to escape. The cecum was delivered after packing off the intestine and with it the appendix. Much to our surprise, the appendix was greatly inflamed and swollen. The tip was much larger than the remainder of the organ, and was dark bluish green. The appendix was removed and the ileocecal region palpated. About 4 inches of ileum was found invaginated into the cecum. This was easily reduced, and the invaginated portion of the intestine was found to be in good condition. The abdomen was closed in the usual manner.

The temperature after operation was 102 on the following day, but returned to normal in two days. Except for this, an uneventful recovery took place. The infant was allowed to return home on the seventh day.

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* From the Harriet Lane Home and the Department of Pediatrics, the Johns Hopkins University.

[1] Churchman, J. W.: The Selective Bacterial Action of Gentian Violet, J. Exper. Med. **16**: 221-247, 1912.

[2] Churchman, J. W.: Treatment of Acute Infections of the Joint by Lavage and Direct Medication, J. A. M. A. **70**: 1047 (April 13) 1918.

[3] Waters, B. H.: Pleural Infection Complicating Artificial Pneumothorax Treated with Gentian Violet, Am. Rev. Tuberc. **4**: 875 (Feb.) 1921.

[4] Churchman, J. W.: Selective Bacteriostasis in the Treatment of Infections with Gentian Violet, J. A. M. A. **74**: 145-148 (Jan. 17) 1920.

[5] Smith, D. T.: Unpublished data.

[6] Smith, D. T., and Burky, E. L.: Unpublished data.

[7] Hill, Justina H.: Personal Communication to the authors.

[8] Hill, Justina H., and Smith, D. T.: A New Method for Testing the Toxic Action of Antiseptics and Dyes on Living Blood Cells, to be published.

[9] Churchman, J. W., and Russell, D. G.: Effect of Gentian Violet on Protozoa and on Tissues Growing in Vitro, with Especial Reference to the Nucleus, Proc. Soc. Exper. Biol. & Med. **11**: 120-124, 1913-1914.

[10] Coleman and Bell gentian violet was used.

* Read before the Fulton County Medical Society, June 7, 1923.

The postoperative diagnosis was: acute appendicitis; ileocecal intussusception.

COMMENT

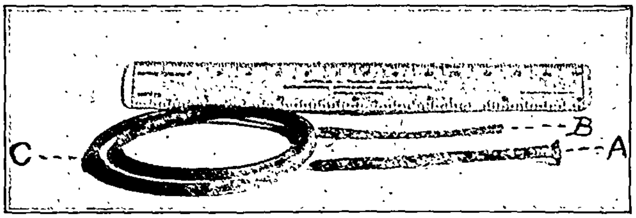
The case is of interest chiefly on account of the finding of acute appendicitis in an infant under 1 year of age.

79 Forrest Avenue.

KELLY CYSTOSCOPY IN THE MALE

John H. Neff, M.D., University, Va.

Direct cystoscopy in men with air distention of the bladder is seldom employed in this country, if one may judge from the infrequent reference to such examinations in the urologic literature. This procedure, with the patient in the knee-chest posture, has been used with such definite advantage in four or five instances that a brief report of these cases seems warranted. Certainly, in the first case operation could hardly have been avoided by any other method.



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REPORT OF CASES

Case 1.—A well developed young man was admitted to the University of Virginia Hospital on his statement that he had a nail in the bladder. About ten days prior to admission the nail had gotten away from him during urethral masturbation, and the resultant vesical irritation finally forced him to seek attention. Palpation along the urethra was negative. A sound elicited a metallic click in the bladder. Indirect cystoscopy revealed a large nail, partially coated with urinary salts, lying transversely in the bladder and with the point apparently embedded in edematous mucous membrane. The bladder was emptied, a Young's urethroscope passed, and the patient then carefully turned to the genupectoral position. After considerable effort, the sharp end of the nail was freed, turned, brought down into the endoscope, and the two withdrawn together, as the nail head was too large to come through the tube. The nail was 8 cm. long and the head slightly more than 8 mm. in diameter (*A* in the illustration).

Case 2.—A boy, aged about 12, had trimmed down a Christmas tree candle and forced it into the bladder two days before admission. Through a small Young's urethroscope, with the patient in the knee-chest posture, the wick of the candle was pulled out and numerous wax fragments were removed. The remainder was thoroughly broken up and was all passed during the next few days (*B*).

Case 3.—A man had passed a rubber catheter on himself as a form of sexual perversion about twenty-four hours before admission. The catheter had apparently completely entered the bladder. The patient was first placed in the marked Trendelenburg posture, but the bladder was too spastic to open up in this position. In the knee-chest posture, the bladder distended readily and the catheter was easily grasped and removed. The catheter was a No. 12 F., 40 cm. in length (*C*).

Case 4.—A young man presented a quite tight stricture of the left ureteral orifice. This had previously been widened by incision with cystoscopic scissors and later by fulguration. There was some tendency, however, to recontraction of the orifice. With a wax spindle built up to 15 F. on a No. 8 Kelly ureteral catheter, the ureteral orifice was quite readily dilated to this degree on several occasions through a Young's urethroscope and with the patient in the knee-jest posture. Technically, the dilation was more easily done than by using bulbs through an indirect operating cystoscope.

COMMENT

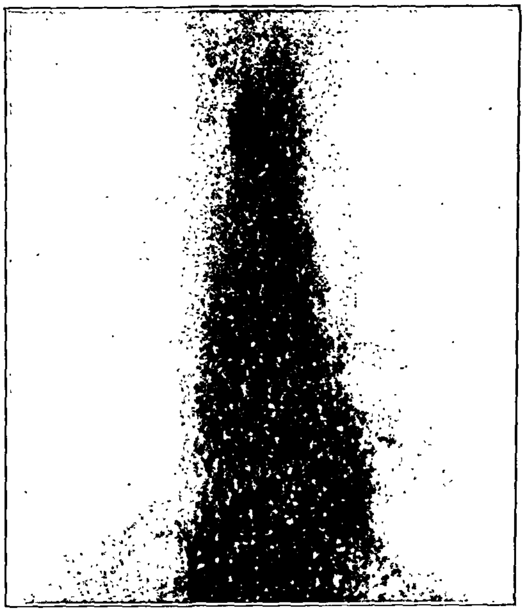
It will be noted that a Young's urethroscope was used in these cases. In fact, it may be of interest that, since 1916, we have used this instrument entirely in many hundred examinations after the Kelly method in women. In our hands this endoscope has proved eminently convenient and satisfactory for this purpose. Its appeal, quite frankly, has been in the excellent, steady illumination given without recourse to a head mirror and reflected light.

A SPOON IN THE ESOPHAGUS

Henry Boylan Orton, M.D., Newark, N. J.

E. D., a white woman, aged 47, admitted to the New Jersey State Hospital for the Insane, at Morris Plains, because she was depressed and had suicidal tendencies, visited her home, on leave. On her return to the hospital, she had had difficulty in swallowing solid foods, with regurgitation and vomiting. A roentgenogram revealed a teaspoon in the esophagus, the bowl resting on the diaphragm. Further questioning of the patient by physicians elicited the information that she had swallowed the spoon four weeks prior to my visit, Sept. 25, 1922, and three weeks before going on leave.

September 25, I was called to the state hospital to attempt to remove the foreign body. An esophagoscopy was done, without anesthesia other than ¼ grain of morphin and $\frac{1}{150}$ grain of atropin given hypodermically one hour before esophagoscopy. An extra long Jackson esophageal speculum was used, which was passed down the esophagus until the handle of the spoon was seen. With special, unusually long alligator forceps, passed through the esophagoscope, the handle of the spoon was grasped, and all was withdrawn together. There was no mechanical solution to solve in its removal, which was accomplished in six minutes from the time the tube was inserted until the spoon was on the table.



Position of spoon in the esophagus.

As the patient was insane, some doubt was expressed as to the advisability of removing a foreign body without anesthesia; but she was perfectly calm, and the whole procedure was accomplished without any disturbance or any untoward effects.

671 Broad Street.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, DECEMBER 29, 1923

THE FILTRABLE VIRUSES

Discovery in the etiology of infectious disease has been limited largely to bacteria that are microscopically visible. Many years ago, however, certain disease-producing agents were recognized that were invisible and so small that they would pass fine earthenware filters. These were termed ultramicroscopic. Now, it seems, some of the organisms heretofore listed as ultramicroscopic can be made visible and so the whole group has come to be classed as the filtrable viruses.

In a recent review, Simon [1] refers to a list of forty-one diseases affecting man and various animals published by Lipschütz [2] in 1913, in which the filtrable nature of the causative agent had been established with some certainty. Among these were the important epidemic diseases smallpox, yellow fever, measles, scarlet fever, poliomyelitis, dengue and trachoma, to which might be added now influenza, herpes and possibly epidemic encephalitis.

It is a curious fact, says Twort,[3] that no worker has ever succeeded in obtaining a culture on artificial mediums of a single "wild" variety of this presumably huge group of viruses. Some special substance may be necessary to their cultivation, but anything so special as to be essential for every member of the group, says Twort, would point to a fundamental difference in their nature. As a matter of fact, the nature of the filtrable viruses is not understood, and it is possible that they represent a distinct form of life heretofore unknown. From the standpoint of evolution, Twort considers it almost inconceivable that life on the earth should have started as a bacterium or an ameba, in which case a lower, precellular form of life must have existed. It is reasonable to assume that such forms of life still exist, and the possibility that the filtrable viruses are included among them deserves consideration. Beijerinck [4] believed that a certain virus which he studied was not corpuscular, but was a contagium vivum fluidum. This conclusion has not been substantiated, for, by using fine agar filters, viruses have been held back and their size has actually been determined.

The d'Herelle phenomenon is of great interest in considering the nature of filtrable viruses. D'Herelle [5] discovered, it will be recalled, a filter-passing substance in the stools of dysentery patients which would dissolve dysentery bacilli. By transferring a loopful of this substance from one emulsion of dysentery bacilli to another, the dissolution process could be kept up indefinitely, and the activity seemed to undergo an actual increase on transfer. D'Herelle's discovery was promptly confirmed, and "lytic bodies" corresponding to other bacteria were found. D'Herelle considered this entire group living organisms as well as filtrable viruses, and named it Bacteriophagum. Twort, Bordet,[6] Gratia [7] and others believe that the bacteriophagia are inanimate, and constitute an acute infectious disease of the corresponding bacteria. If this is true, our definition of infectious disease must be revised, for it implies the presence of a living agent, and certain ailments now classed as metabolic, as well as the malignant tumors, might with better reason be considered infectious.

Granting that available evidence favors classifying most filtrable viruses as animate, are they bacteria or protozoa? To assume to answer this question on the basis of present knowledge is, as Simon states, unwarrantable. It is of interest to consider, however, the possibility that certain low forms of animal and vegetable life, while becoming differentiated to higher forms, may retain the power to return temporarily to a more primitive state, so reduced in size as to make them filtrable. Such possibility seems to have already been demonstrated. Novy and MacNeal observed that *Trypanosoma lewisi*, which is not usually filtrable, may assume a filtrable state; and Reich and Beckwith [8] have substantiated this observation by infecting guinea-pigs with filtrates of the blood of animals infected with *Trypanosoma brucei*. There is some reason to believe also that bacteria endowed with this property exist, for Olitsky and Gates [9] have shown that the peculiar *Bacterium pneumosintes* may assume a filter-passing size and at other times be 1 micron in length. There can be no objection, therefore, to the hypothesis that disease-producing agents of corpuscular nature may exist which in part belong to low forms of life, which are neither bacteria nor protozoa, and in part to the higher forms of ferments, and that the main group of filtrable viruses may be properly classified here.

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[1] Simon, C. E.: The Filterable Viruses, Physiol. Rev. **3**: 483 (Oct.) 1923.

[2] Lipschütz, B.: Filtrierbare Infektionserreger, Kolle and Wassermann's Handbuch der pathogenen Mikroorganismen **S**, 1913.

[3] Twort, F. W.: The Ultramicroscopic Viruses, J. State Med. **31**: 351 (Aug.) 1923.

[4] Beijerinck, M. W.: Ueber ein Kontagium vivum fluidum als Ursache der Fleckenkrankheit der Tabaksblaetter, Centralbl. f. Bakteriol., Orig. **5**: 27, 1899.

[5] D'Herelle, F.: Sur un microbe invisible antagoniste des bacilles dysentériques, Compt. rend. Acad. d. sc. **165**: 373, 1917.

[6] Bordet, J., and Ciuca, M.: Le bacteriophage de d'Herelle, Compt. rend. Soc. de biol. **133**: 1296, 1920.

[7] Gratia, A.: Studies on the d'Herelle phenomenon, J. Exper. Med. **34**: 115 (July) 1921.

[8] Reich, W. W., and Beckwith, T. D.: Trypanosoma Brucei as a Filterable Virus, J. Parasitology **9**: 93 (Dec.) 1922.

[9] Olitsky, P. K., and Gates, F. L.: Experimental Studies of the Nasopharyngeal Secretions from Influenza Patients, VIII, Further Observations on the Cultural and Morphological Characters of Bacterium Pneumosintes, J. Exper. Med. **35**: 1 (Jan.) 1922.

Research in the etiology of infectious disease was started in a new direction in 1907, when von Prowazek determined the significance of certain "cell inclusions" that had been noted long before filtrable viruses were known to exist. The conclusion that cell inclusions are actually virus granules surrounded by a mantle of reaction products has in most part been abundantly demonstrated. Cell inclusions now suggest the activity of a filtrable virus, and this gives the Negri bodies in rabies, and the cell inclusions in smallpox, trachoma and certain other infectious diseases, a new importance. The absence of cell inclusions in specific lesions of a disease does not, of course, imply the absence of a filtrable virus as a causative agent, nor does it follow that, not being noted, they are not present. Did not Lipschütz[10] recently demonstrate cell inclusions in the three types of herpes—herpes simplex, herpes genitalis and herpes zoster—which prominent investigators in the past had failed to recognize? It seems, as Simon believes, that a great deal of reinvestigation must be done in the infectious diseases in which the cause is unknown, before the activity of a filtrable virus can be definitely excluded.

SILICOSIS AND TUBERCULOSIS

The inhalation of dust is widely recognized as a menace to health. Pneumonoconiosis, the designation applied to various forms of disease attributable to dust, indicates the fact that pulmonary lesions represent the immediate pathologic factor to be dealt with. Dust, like dirt, has been defined as a form of matter out of place. As there are many kinds of matter, so there will be many sorts of dust—a fact that has been all too little recognized in the consideration of dust diseases. The physician who has occasion to deal with occupational diseases in which dust figures in an etiologic way has long been impressed by the fact that coal dust is far less harmful than are silicious dusts, for example. The health of coal miners throughout the civilized world is, in fact, pronounced by no less an authority than Sir Thomas Oliver as satisfactory.

It is important to understand the immediate fate of inhaled dust. Most of it is expelled from the air passages. Some of the minute particles pass to the alveoli and are carried thence into the lung tissue, where they undergo a "pleural drift." The foremost pathologic aspect of pneumonoconiosis is fibrosis, or the replacement of the elastic tissue of the lung by an unyielding fibroconnective tissue whereby the aerating function of the pulmonary structures is impeded because of the solidity of the new masses. Coal dust promptly produces a catarrhal reaction, which is helpful in eliminating the irritant. Other mineral dusts, particularly those arising from quarrying, mining and cutting certain stones having a high content of the insoluble silica, are less readily eliminated, and therefore promptly start the formation of pulmonary fibrosis, with a train of symptoms often confused with those of pulmonary tuberculosis, yet distinguishable clinically from them.

The comparatively low incidence of pulmonary tuberculosis among coal miners has often been remarked. Silicosis has in the past been regarded as a tuberculous disease in its general outcome. Oliver[1] has pointed out that in a considerable number of persons dying from silicosis no sign of tuberculosis is found in the lungs or in the body generally; consequently silicosis must be regarded as a nontuberculous disease, in its early stages at least. Nicholson[2] has lately given emphasis to similar considerations, pointing out that fibroid phthisis is a distinct entity and in no sense a true form of tuberculosis. It is not even clear that fibrosis predisposes to tuberculosis, the disease associated with the bacillus of Koch, though the latter may, of course, become a complication of silicosis. The low infectivity that Nicholson attributes to cases of pulmonary fibrosis may be due to the fact that many cases are never tuberculous at all. Tuberculosis is already charged with enough damage, without having an independent disease entity sharing its fateful statistics.

THE SUPPLEMENTARY SCHOOL LUNCH

"Malnutrition is a very old subject, and the ideas and theories held about it have frequently emanated from men working behind desks rather than from those in direct contact with the children needing help." This stricture, written by Emerson[3] not long ago, will scarcely be applicable to conditions in the United States in the near future. Child welfare is at length receiving a liberal share of consideration in the plans for national health betterment. Progress is on the way, although the needs, the methods of meeting them, and the correct evaluation of the results attained still awaken considerable discussion. We may be said to be living today in an era of program making, with the possibilities of accomplishment still too uncertain or ill defined to justify any final judgment. It has been said that the laboratory field, in which results can be measured by chemical reactions and the microscope, has been more alluring to the research worker than has clinical work, with such a difficult and uncertain factor as the children themselves. One must remember, however, that the laboratory worker often has the satisfaction of dealing with phenomena susceptible of relatively exact measurement. Accuracy and precision satisfy the human mind more readily than do vague generalities such as the discussion of malnutrition has heretofore involved.

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[10] Lipschütz, B.: Untersuchungen über die Aetiologie der Krankheiten der Herpesgruppe, Arch. f. Dermat. u. Syph. 126: 428, 1921.

[1] Oliver, Thomas, in Kober and Hanson's Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's [illegible] Co., 1916, p. [illegible]

[2] Nicholson, B. S.: The D[illegible] the Inhalation of Silica Dust [illegible] Tuberculosis, J. Indust. Hyg. 5: [illegible]

[3] Emerson, W. R. P.: [illegible] York, D. Appleton & Co., 19[illegible]

Today our adolescent Johns and Marys are being weighed and measured and tested in various ways, as never before; so that presently more adequate statistical information will become available regarding the problems of nutrition and growth. Presently the easily repeated slogans of the passing decade will be called on to justify themselves. We read, for example, of the need of "a quart of milk a day for every child." This advice has frequently been upheld in The Journal, and we still regard it as entirely wholesome. Milk is, however, a highly complex food, valued especially for its excellent protein, its peculiar carbohydrate lactose, its unique richness in calcium and phosphorus, and its content of the indispensable vitamins. Some of these features give milk an unrivaled value as a school lunch. Consequently, one of the most common methods of overcoming undernutrition among school children is the introduction of a supplementary lunch, consisting usually of milk and crackers. Many data have been published in recent times demonstrating in striking ways how efficacious such provision may be for the underweight child.

Parents have repeatedly noted the satiating effect of milk given as a midmorning lunch. Chaney[4] has reminded us that in many instances a glass of milk taken between meals or at the beginning of the meal will cause lack of appetite; and, as the undernourished child already has a tendency to diminish his food intake, this may be a more serious consideration than it appears on the surface. In an extensive series of observations, Chaney has consequently made a comparison of growth variation in underweight children in Oakland, Calif., schools, with respect to different types of supplementary lunches. The children were free to gain, as far as could be determined by physical and dental examination. The economic status of the majority of the homes permitted provision of adequate food. The results seem to demonstrate that a midmorning lunch is of value in overcoming a condition of underweight in children.

It is interesting to learn, however, that milk, though it produces a favorable increase in weight, is not the only food valuable for the midmorning lunch. Oranges and orange juice also were strikingly efficacious in producing the desired gains. The virtues of this fruit have long been recognized, so far as its palatability and antiscorbutic properties are concerned. It is not so generally appreciated that oranges contain vitamins A and B as well as the scurvy-preventing vitamin C. The secret of their nutritive success may lie in a promotion of appetite for other foods—a property ascribed to vitamin B. In the California children studied, the growth following the use of oranges in the supplementary lunches averaged more than 100 per cent. above the expected gains, even surpassing in these cases the gains promoted by milk. Whatever the explanation may be, it is fortunate to learn that nutritive advantages may be secured in other ways when milk, for some reason, becomes unsuitable or unavailable. There should be more than one way leading to successful nutrition.

Current Comment

THE ANEMIA CAUSED BY THE BROAD TAPEWORM

Infestation with the broad tapeworm, *Dibothriocephalus latus*, has not attained any conspicuous importance among the zooparasitic diseases of man. This tapeworm gains entrance to the body when raw or underdone fresh water fish that harbor the larval stage of the cestode are eaten. The few cases reported in this country have occurred mostly among foreigners; but Stiles of the U. S. Public Health Service believes it likely that immigrants will infect the fish of some of our lake regions, so that the distribution promises to become almost cosmopolitan following the fresh water fish diet. The special medical significance of infestation with the broad tapeworm is the tendency to the development of a severe anemia resembling pernicious anemia. Retinal hemorrhages have been reported in many cases. The erythrocyte count may fall below 2,000,000 per cubic millimeter in a large number of the cases, and some elevation of temperature may occur. It has long seemed probable that the symptoms noted are attributable to some hemolytic agent liberated by the parasite. Anemia has been developed experimentally in animals by administration of digestion products of the broad tapeworm, thus suggesting that some chemical component may be liberated at times and give rise to the untoward symptoms, which are by no means of omnipresent occurrence. Haden[1] of the University of Kansas School of Medicine has reported an unusually significant case in which the patient had probably harbored the parasite for six years without showing any symptoms. There was an anemia of sudden onset, which quickly disappeared after the worm was expelled. When recovered, a large part of the worm was in a state of decomposition. These findings lend support to the idea expressed by Faust and Tallqvist that the anemia of bothriocephalus infestation is due to the absorption of hemolytic substances from the dead worm. The subject is of more than passing importance because there is a large probability that more cases will be recognized in the United States in the coming years and because, in a considerable percentage of cases, confusion with true idiopathic pernicious anemia is likely to occur clinically. There should be little or no difficulty in diagnosing the cases. As the uterus has a special uterine pore, eggs are con-

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[4] Chaney, Margaret S.: A Comparison of the Value of Milk and Oranges as Supplementary Lunch for Underweight Children, Am. J. Dis. Child. **26**: 337 (Oct.) 1923.

[1] Haden, R. L.: The Cause of Bothriocephalus Anemia (Report of a Case), Am. J. M. Sc. **166**: 338 (Sept.) 1923.

stantly discharged from gravid segments, and may be found in the feces by microscopic examination. The segments show a tendency to be passed in small chains, and ought not to be confused with those of the other tapeworms found in man. Feces of persons harboring this worm should be cared for in such a way that the eggs contained therein do not gain access to fresh-water streams or lakes. Thorough cooking of fish will protect man from infestation.

LIPEMIA RETINALIS

Intra-ocular lipemia, or lipemia retinalis, as it is now most frequently termed, was first described as a symptom of diabetes mellitus by Heyl of Philadelphia in 1880. The diagnosis is based on the ophthalmoscopic aspect of the vascular net of the eyeground. A recent review of the subject in THE JOURNAL[1] has served to direct attention to this significant manifestation of the retina, which seems to have been recognized only rarely, despite the large incidence of diabetes and the growing prominence of lipemia. An added contribution by McCann[2] from the Johns Hopkins Hospital supports the belief that, although only thirty cases have been noted in accessible journals, the condition is much more common than one would suppose from the infrequency of the case reports. There was a time when retinal lipemia was regarded as a terminal symptom of juvenile diabetes. Modern methods of treatment are destined to remove the justification for this assumption. Heretofore it has been supposed that the altered appearance of the retina is due to an excess of fat in the blood—a condition not uncommon in patients with diabetes. McCann's analyses have made it clear, however, that the total fat content of the circulating medium cannot be the sole factor in the retinal manifestations, for the two features do not always parallel each other. Lipemia may persist after the retina has assumed a normal appearance. McCann believes that when the vessels appear whitish, fat may become deposited in their adventitia, or they may become surrounded by a lymph rich in fat so that light is abnormally reflected or refracted. Possibly, too, the state of aggregation of the fats and lipoids in the blood may have more to do with the appearance of the retina than does the total lipoid content. With a growing realization of the presumable frequency with which retinal lipemia occurs, a correct interpretation of its genesis may soon be expected.

THE LOCALIZATION OF IODIDS IN THE BODY

For the physician, iodin and its compounds possess a manifold interest. Outside the body they are employed as antiseptics. The most familiar preparations for such use are iodoform and the tincture of iodin, the latter being one of the most popular of the useful remedies that the practitioner has occasion to employ. For internal administration, the iodids have long had a vogue in medicine. Recent years have brought a host of iodin-yielding competitors in the form of organic compounds of the element; but in all cases in which iodin is used internally the effective therapeutic agent seems to be the iodid ion. In addition to the varied uses in which distinctly medicinal effects are sought, iodin has become recognized as an essential constituent of the organism since its discovery in the thyroid gland by Baumann in 1895. The quantities there concerned are small in any event, involving, at most, milligrams. The estimation of the occurrence of the element under normal conditions and its distribution in the bodily changes has taxed the ingenuity of the analytic chemist, so that relatively few dependable data are available. They deal, at most, with the gross quantities of iodin in masses of blood or tissues. A distinct step in advance, therefore, has been taken by Stieglitz[1] in perfecting a method whereby iodids can be specifically identified, even in minute amounts, in the tissue cells. His studies by means of this technic at the Johns Hopkins Hospital have elicited the highly significant fact that, when iodids are administered, they have a characteristic distribution. The iodin is present chiefly in parenchymatous secreting cells such as those of the kidney and liver, as well as in the epithelium of the trachea and bronchi. With reference to the concentration of the element at the free border of the epithelial cells of the air passages, Stieglitz reminds us that, since iodids are used to increase the flow of mucus—to make a cough "productive," as it were—the histologic findings referred to may possibly be interpreted to suggest that iodids are being secreted there, concentrated at the secretory pole, much as the droplets of mucus in goblet cells. A useful method of investigation is always likely to enrich our knowledge. We shall therefore expect presently to learn much more about the deportment of iodin in the organism.

THE ALLEGED CONVERSION OF ONE PROTEIN INTO ANOTHER

The modern development of immunology has furnished numerous observations indicating that some of the biologic properties of the blood and tissue fluids are closely associated with the proteins therein. If the latter are not actually responsible for the reactions involved, they may at least be assumed to act as carriers of the potent products. An illustrative instance is furnished by the antitoxin of diphtheria, which is in some way associated with the globulin fraction of blood serum. Certain investigators have expressed the belief that globulins may be formed directly from albumins. Twenty years ago, Joachim, for example, asserted that the globulin content of horse serum increases at the expense of its albumin fraction as a consequence of immunizing the animal to diphtheria toxin. Shortly afterward it was announced by Moll[2] that a comparable conversion of albumin into globulin can be brought about in vitro by the simple scheme of heating albumin solutions in an alkaline medium. The judgment as to the occurrence of an actual conversion of one protein into another in this way was based on altered solubilities and other

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[1] Gray, Horace, and Root, H. F.: Lipemia Retinalis, J. A. M. A. 80: 995 (April 7) 1923.

[2] McCann, W.: Lipemia Retinalis, Bull. Johns Hopkins Hosp. 34: 302 (Sept.) 1923.

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[1] Stieglitz, E. [illegible] His [illegible] Detection of I [illegible] Pharmacol. & Exper. Therap [illegible] Sc [illegible] 4: 563

[2] Moll: Be [illegible]

physical properties of the new product. There have, however, been repeated protests against this. Albumins and globulins differ not only in their unlike behavior to solvents but also in respect to their chemical make-up; accordingly, biochemists have pointed out the incongruities involved in the alleged conversion. Of late, the serologists who are wont to develop highly specific biologic tests for proteins have protested against the theory of the ready conversion of albumins to globulins. The latest of the critics, Fanconi,[3] has pointed out anew that the so-called artificial globulins differ even in their physical properties from naturally occurring proteins of the globulin type; furthermore, their behavior in anaphylactic tests and other comparable biologic reactions speaks against the assumption that true globulins can be formed as asserted. Thus, the native proteins still remain as examples of unique products that the chemist can as yet neither synthesize nor transmute into each other—nor is the probability of such a remarkable chemical performance near at hand.

Association News

MEETING OF JUDICIAL COUNCIL

A meeting of the Judicial Council, with all members of the Council present, was held at Chicago, December 17. Two appeals were before the Council, both of which were set for final hearing at a later date. A large number of communications were considered by the Council, most of which were referred to state associations for proper disposition, since they concerned matters that come within the jurisdiction of state councils or county medical societies. Opinions and decisions arrived at by the Council will be submitted to those concerned through correspondence and through the *American Medical Association Bulletin* and THE JOURNAL.

MEETING OF THE COUNCIL ON SCIENTIFIC ASSEMBLY—CONFERENCE OF SECTION SECRETARIES WITH THE COUNCIL

A meeting of the Council on Scientific Assembly was held at Chicago, December 21-22. All members of the Council were in attendance, and many matters pertaining to the scientific work of the Association were given consideration. Requests were submitted to the Council for the creation of at least two new sections. It was decided that two sessions on radiology and one session on anesthesia shall be held in the Section on Miscellaneous Topics at the Chicago Session, June 9-13, 1924. For the sessions on radiology the following officers were chosen: chairman, W. F. Manges, Philadelphia; vice chairman, Albert Soiland, Los Angeles; secretary, M. J. Hubeny, Chicago. For the session on anesthesia: chairman, J. T. Gwathmey, New York; vice chairman, E. I. McKesson, Toledo; secretary, Isabella Herb, Chicago.

A number of communications suggesting the creation of a new section on physiotherapy were before the Council. It was the opinion of the members of the Council that papers on subjects pertaining to physiotherapy should be presented before the proper sections of the Scientific Assembly already in existence. It was apparent in the discussion of the matter that the Council considers it important that papers which will properly present physiotherapeutic measures and methods of proved efficiency shall be so presented, and that what has been established in this field should be forcefully brought to the attention of the general profession.

On December 22, the regular annual conference of the section secretaries with the Council on Scientific Assembly was held. All sections but two were represented by their secretaries. Unforeseen emergencies prevented the attendance of officers of these two. Reports submitted indicate that the program of the Scientific Assembly at the Chicago Session will be of a high order and of a wideness of scope that will attract and interest a large attendance from all ranks of the profession of the country.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CONNECTICUT

The Diploma Inquiry Continued.—The grand jury investigation of fake medical diplomas has been discontinued until January 2. Seventy-five new subpoenas have been prepared for witnesses. It is said that subpoenas have been served on Dr. Francis J. Harper of Norwich and the Rev. Dr. George F. Coggswell, a magnetic healer, and that a search has been made for Dr. William Apostolon Roody, a native of Turkey, who until recently had an office in New Britain. New York is cooperating with Connecticut and a conference between officials of the two states will be held before the grand jury reconvenes on evidence already adduced. It is said that an exodus of quacks from Connecticut to New York has occurred since the inquiry started and that New York officials have brought to the attention of the grand jury the case of Dr. John Hraba, said to be a graduate of the Middlesex College of Medicine and Surgery and of Carnegie University. Hraba when licensed in Connecticut in 1920 gave New York as his address, saying he was born in Vienna, and had the degrees of B.A., Ph.D. and D.O. Herman Shelf of New York City has written to the Connecticut Department of Health recommending that his own license be revoked and returning his license by letter. Shelf had not yet been under suspicion as far as known. Investigators have found, it is said, that Dr. Julius P. Karp, an eclectic of Hartford, failed five times to pass the state board examination in Connecticut, then, after attending the Kansas City College of Medicine and Surgery, passed the Arkansas eclectic board, and returned to Connecticut and passed the examination there.

DISTRICT OF COLUMBIA

Funds for Health Department.—The budget submitted to Congress, December 10, calls for an appropriation of $245,340 for the department of health of the district. The largest item was $130,640 for employees. Fourteen thousand five hundred dollars was requested for a dispensary for indigent persons affected with tuberculosis and venereal disease.

FLORIDA

Personal.—Dr. Henry O. Snow, Tampa, has resigned as county physician. Dr. Allen F. Higgins has been appointed to succeed him for the unexpired term which closes Jan. 1, 1924.

Hillsborough County Election.—The following officers were elected by the Hillsborough County Medical Society at Tampa, recently: president, Dr. John H. Mills to succeed Dr. Joshua C. Dickinson; Dr. H. Mason Smith, vice president, and Dr. Charles R. Marney, secretary.

State Public Health Conference.—At the annual meeting of the Florida Public Health Association in Jacksonville, November 26-27, Rabbi Israel L. Kaplan, Jacksonville, was elected president; Prof. R. M. Seeley, Tallahassee, vice president, and Dr. Turner Z. Cason to the board of directors. It was arranged to form a state department of health education as a branch of the state department of public instruction.

GEORGIA

Personal.—Dr. Warren A. Harrison, Sycamore, has been appointed full-time health commissioner of DeKalb County. ——Dr. Charles L. Ridley has been appointed health officer for Macon and Bibb County.

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[3] Fanconi, G.: Zur Frage des sogenannten künstlichen Globulins, Biochem. Ztschr. **139**: 321 (July) 1923.

ILLINOIS

Chiropractor Convicted.—Max Walder, chiropractor of Danville, was found guilty by a jury in a Danville court of "treating human ailments without the use of medicine or surgery and without a state license," it is reported. Walder appealed the case maintaining that the law is invalid.

Personal.—Dr. Lewis T. Gregory has resigned as physician at the county hospital, home and jail of Urbana. He is succeeded by Dr. George F. Way.——Dr. Charles H. Chetwood, New York City, has been appointed attending urologist to the French Hospital, New York City.——Thomas G. Hull, Ph.D., chief of the division of laboratories, state department of health, represented the department at the annual meeting of the Society of American Bacteriologists at New Haven, Conn., December 27-29.——Dr. Albert E. Campbell has resigned as city superintendent of Springfield.

Chicago

"Doctor" Locked Up.—It is reported that "Dr." K. S. Ramasauskas, Chicago, was locked up at the detective bureau recently accused of causing the death of an infant for which he prescribed.

Personal.—William A. Hoffman, Chicago, has recently been elected secretary of the Chicago Eye, Ear, Nose and Throat College, to succeed the late John Raymond Hoffman.——Dr. Loyal E. Davis, Chicago, has been granted a professorship in surgery at the University of Chicago Medical School for three years.

INDIANA

Hospital News.—Bids will be opened, December 10, for the new Lake County Hospital which will be erected in East Chicago at a cost of $400,000.——A new hospital building will be erected for Howard County at Kokomo at a cost of $250,000.

Typhoid Epidemic.—The epidemic of typhoid fever at Fort Wayne, noted in last week's JOURNAL, comprised 111 cases and nine deaths on December 12, at which time Dr. Arthur L. Oilar, of the state board of health, said the epidemic was about over.

License Restored.—It is reported that Judge E. M. Norton, Lake County Circuit Court, has ordered that the license of Dr. Adolph M. Teixler, Indiana Harbor, be restored. The court ruled, it is said, there was no evidence to sustain the charges entered against Dr. Teixler.

Personal.—Dr. Herman L. Kretschmer, Chicago, was the principal speaker at a dinner of the Indianapolis Medical Society, December 11. His subject was "Problems of Diagnosis in Kidney Surgery."——Dr. Max A. Bahr has been appointed superintendent of the Central Hospital for the Insane, Indianapolis, to succeed the late Dr. George F. Edenharter, who died last week.

KANSAS

Reciprocity Abandoned.—That form of reciprocity between Kansas and Arkansas by which physicians licensed to practice medicine in one state might obtain a license to practice in the other has been abandoned due to the exposure of the Missouri diploma mills.

KENTUCKY

Hospital News.—The Jackson City Hospital, Jackson, was opened to the public, November 1. The staff comprises Drs. C. Hardin Hurst, Overton H. Swango, Daniel H. Kash, Myrvin E. Hoge and Arthur H. Davis.

Personal.—Dr. Richard A. Bolt, medical director of the American Child Health Association, delivered a series of lectures during the week, December 17-22, before the students of the University of Louisville Medical Department, the state board of health and other organizations.

LOUISIANA

Personal.—Dr. Harvey F. Garrison has resigned as physician to Mississippi College, Clinton, and will practice at Jackson.

Parish Schools Closed.—Dr. Oscar Dowling, president of the state board of health, has ordered the closing of the Ouachita Parish schools. It is reported that the Ouachita Parish Board of Education and the head of the parish schools "neglected, failed or refused to cooperate for the protection of the public health" with regard to obeying that part of the sanitary code which concerns smallpox vaccination.

MAINE

Illegal Practitioner Held.—It is reported that Raymond E. Cunningham of Lagrange was held in the municipal court at Bangor recently for the January grand jury charged with practicing medicine without a license. Cunningham gave bail.

Personal.—Governor Baxter recently nominated Dr. George L. Pratt of Farmington as medical examiner for Franklin County.——Dr. Silas Blaisdell, formerly of Brooklyn, N. Y., has been appointed a member of the Waldo County General Hospital staff at Waldo.

MASSACHUSETTS

Chiropractors Fined.—It is reported that William E. McDougal and Joseph E. Jasper, Boston chiropractors, were each fined $200 in the municipal court for practising medicine without a license.

Dr. Swope Out Under Bond.—Dr. Dalva H. Swope, Boston, indicted as accessory to the crime for which William M. Robb is now serving sentence (THE JOURNAL, Dec. 22, 1923) has been released on $5,000 bail. The accessory to murder indictments were nolle prossed against Dr. Swope, but he was rearrested on a capias in order to hold him on a new indictment for lesser crimes.

MICHIGAN

Smallpox.—Ten cases of smallpox were recently discovered at Augusta recently by the local health officer, who made an investigation by request of the state board of health.

Dr. Olin Reappointed.—Dr. Richard M. Olin, Lansing, state health commissioner, has been reappointed to that position and the appointment has been confirmed by the senate.

MINNESOTA

Chiropractor Sentenced.—Bernard Lee, chiropractor, St. Paul, charged and convicted by a jury in district court of practicing chiropractic without a state license was sentenced to six months in jail and to pay a fine of $100, it is reported.

Society News.—The Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association met at Minneapolis for its annual meeting, December 11-12. Dr. John V. R. Lyman, Eau Claire, Wis., presided. Dr. Frank Gregory Connell, Oshkosh, Wis., was elected president; Dr. George G. Eitel, Minneapolis, vice president, and Dr. John H. Rishmiller, Minneapolis, secretary-treasurer.

Personal.—Dr. Anthony A. Meyer was elected mayor of Melrose at the recent election.——Dr. Lysander P. Foster, known as Minneapolis' oldest physician, celebrated his eighty-seventh birthday, November 4.——Drs. John B. Robertson, Cottonwood, and Harper M. Workman, Tracy, were elected president and secretary-treasurer, respectively, of the Lyon-Lincoln County Medical Society, recently.

MISSOURI

Chiropractor Guilty.—H. L. Gordon, Princeton, a chiropractor, who was indicted about three months ago for practicing medicine without a license, was found guilty, December 14, and assessed a fine of $50.

Personal.—Dr. D. D. Campbell, superintendent of state hospital No. 3, Nevada, has resigned. Dr. James H. Parker, superintendent of state hospital No. 4, Farmington, has been transferred to the state hospital at Nevada.

NEW JERSEY

Antiquack Legislation Proposed.—The State Board of Medical Examiners of New Jersey announced, December 18, that legislation to weed out the quacks from among the medical practitioners of the state would be proposed to the 1924 legislature. The board will recommend measures that will prevent persons unable to meet the state requirements from obtaining a license, that will force medical institutions to get the approval of the state board before obtaining charters, and that will require interns to pass an entrance examination.

Personal.—A testimonial b [illegible] iven to Dr. Arth Leland Smith, New Bru [illegible] r 14, at Ru College, in recognition [illegible] ice t public schools of the cit [illegible] th.

watch.——Dr. Julia C. Mutchler, Dover, has been elected a member of the Dover board of aldermen.——Dr. Thomas S. Dedrick, Washington, who was a member of Admiral Peary's arctic expedition, addressed the Clinton Woman's Club, recently.——Drs. Samuel F. Ashcraft, Mullica Hill, and Dr. George E. Reading, were elected president and secretary-treasurer, respectively, of the Gloucester County Medical Society, November 15.

NEW YORK

University News.—Columbia University College of Physicians and Surgeons is offering a course in laryngology and otology, January 7, and also a course in diseases of children on January 14. The latter course will be repeated, March 10, for another eight weeks. Among the instructors will be Professors Kernan, Gallaudet, Elwyn, Hawkins, Dunning and Rosen.

Society News. — The subject for discussion at the meeting of the Medical Association of the Greater City of New York, at the Academy of Medicine, December 17, was "Pneumonia." Dr. Russell L. Cecil read a paper on "The Serum Treatment of Pneumonia"; Dr. Tasker Howard on "Some Points on the Early Diagnosis of Pneumonia"; Dr. William Benham Snow on "Diathermy in the Treatment of Pneumonia" and Dr. Harlow Brooks on "The Management of the Heart in Pneumonia."——The Williamsburg Medical Society, at its annual meeting, December 10, elected the following officers: president, Dr. Max Lederer; vice presidents, Drs. Herman Shann and Aaron Rokeach; treasurer, Dr. Joseph F. Morris; secretary, Dr. Bernard B. Berkowitz.

New York City

Opium Raid.—Dr. Carleton Simon, special deputy police commissioner in charge of the narcotic division led a raiding party aboard the British ship *Fort St. George* of the Furness Burmuda line, December 18. As a result nineteen Chinese were locked up in the police station charged with smoking opium and with having opium in their possession illegally. The twentieth victim was unconscious and was left aboard a prisoner.

Dr. Emerson Visits Germany. — Dr. Haven Emerson, of Columbia University, sailed, December 15, for Berlin, Germany, to obtain first-hand information concerning the situation there. Dr. Emerson went at the invitation of the American Friends Service Committee. He will visit Breslau, Chemnitz, Düsseldorf, Cologne and parts of the Ruhr region to observe the condition especially of children in the hospitals and schools.

Rockefeller Institute. — The hospital of the Rockefeller Institute for Medical Research announces that the following conditions are being studied in this hospital and that patients suffering from these diseases will be admitted to the extent of the hospital facilities: (1) Chronic cardiac disease, patients showing a completely irregular pulse and fibrillation of the auricles are especially desired; (2) rheumatic fever, patients should be referred early in the course of the disease; (3) chicken-pox; (4) acute pulmonary infections, including acute lobar pneumonia; (5) nephritis, particularly in young persons. Cases showing edema are especially desired.

Chiropractor's Case Probed.—District Attorney Dodd of Brooklyn began an investigation, December 19, of circumstances surrounding the death of a 6 year old child who died of diphtheria after being treated by a chiropractor by the name of Ernest Meyer, it is reported. A physician was called to see the patient forty-five minutes before she died. Dr. Gerhard L. Moench, medical examiner of Brooklyn, who assisted at the necropsy, said, according to reports reaching his office the child had not only failed to receive proper medical attention before it was too late, but that the chiropractor who had been treating the child for some time had also failed to report the case to the health department as required by law.

Kings County Medical Society.—At the one hundred and third annual meeting of the Kings County Medical Society in Brooklyn, December 18, a resolution was unanimously adopted to support the state and city officials in exposing and eliminating quackery in the medical profession. The resolution was as follows: "Whereas there has been a conference of the District Attorney of Kings County, representatives of the police and health departments, and the Medical Society of Kings County looking to ways and means of ascertaining the number of fraudulent practitioners of medicine in this county and of determining steps to be taken to rid the county of the same, therefore be it resolved that the Medical Society of the County of Kings do hereby pledge itself to aid the above named public officials in any and all ways possible toward the consummation of that purpose as it always has." A motion to the effect that identification cards be issued to all members in good standing was adopted after some opposition. The following officers were elected: Charles A. Gordon, president; John E. Jennings, vice president; Lewis P. Addoms, secretary; Charles H. Goodrich, treasurer; Eliot Bishop, associate treasurer; William Browning, directing librarian; Jacques C. Rushmore associate directing librarian and curator; Charles E. Scofield, the retiring president, trustee.

OHIO

Seven Chiropractors Tried.—In Squire Schuler's court at Sevenmile recently, chiropractors Barlow, Craig, Heim and Heim, Thomas and Thomas of Middletown and Zierfle of Oxford were tried and found guilty of practicing medicine without a state license, it is reported.

PENNSYLVANIA

Board of Health Elects Officers.—At the annual meeting of the Jersey Shore Board of Health, December 7, Dr. Warren N. Shuman was elected president; Dr. J. O. Karicher was reelected secretary and Dr. M. R. Derk was reelected health officer of Jersey Shore for one year.

More Diploma Mills.—The state board of medical and dental examiners has requested an investigation of five alleged diploma mills incorporated in Delaware, and said to be operating, from New York. Complaint has already been filed against one of them, the so-called "Lincoln University, Inc." The others are the "Lincoln College of Chiropractic, Inc.," "The Cosmopolitan University, Inc.," "Lafayette University, Inc.," and the so-called "Rockefeller Institute," which was chartered last September, two of the officers being David Rockefeller and Catherine Rockefeller. These organizations are permitted, it is said, to grant degrees by correspondence courses. Dr. William Hellegas, of the Pennsylvania state board of medical examiners, said, it is reported, that for $100 any sort of a diploma would be given.

Philadelphia

Gifts to the University of Pennsylvania.—The board of trustees of the University of Pennsylvania announced, December 17, that two gifts, totaling $500,000 had been received by the university toward the erection of a $1,000,000 laboratory of anatomy and physiological chemistry. One gift of $250,000 was from the Rockefeller Foundation and the other was from the General Medical Education Board. Both are offered with the understanding that the university will raise at least an additional $500,000 for the laboratory building. President Penniman placed before the trustees a comprehensive scheme for the launching of the university's long deferred endowment campaign. President Penniman said last spring that an endowment of $25,000,000 would not be more than adequate for the university. The trustees have set no definite date for the opening of the endowment drive.

RHODE ISLAND

Personal.—Dr. Alfred M. Merriman, Providence, has been re-elected medical inspector of the public schools of Bristol.

SOUTH DAKOTA

Health in Minnehaha County.—If Minnehaha County will provide funds for an extended health program, both the Rockefeller Foundation and the state department of health will each give $2,500. The new work would include instruction and care in maternity and infant cases, examination and care of tuberculosis and general and school nursing.

TENNESSEE

Personal.—Lieut. Robert W. Wimberly, M. C., U. S. Navy, gave an address on the United States Navy from the Revolutionary War to the present time, before the senior class of Vanderbilt University Medical Department, December 5. ——Dr. Henry M. Bracken, Minneapolis, conferred with health officials in Nashville, December 5, to secure the cooperation of state health agencies concerning an educational campaign for the treatment and prevention of venereal disease. Dr. Bracken, who is working under the auspices of the American Social Hygiene Association, will also visit Georgia, Louisiana, Alabama, North Carolina and South Carolina.——Dr. Olin W. Rogers, Knoxville, was elected president recently of the Southern Association of Anesthetists, at Washington, D. C.

TEXAS

Crippled Children's Hospital Opened.—The Shriner's Hospital for Crippled Children at Dallas was formally dedicated, November 15. The new institution, which was erected at a cost of $300,000, will receive only charity patients.

Professor Chandler Resigns.—Asa C. Chandler, Ph.D., professor of biology, Rice Institute, Houston, has resigned to accept a position as head of the department of helminthology in the School of Tropical Medicine, Calcutta, India. Professor Chandler will leave for India early in January.

Clinic at Army Hospital.—At the ninth annual convention of the Medical and Surgical Association of the Southwest held at El Paso, December 11-13, an evening was devoted to a clinical demonstration at the U. S. Army William Beaumont General Hospital, Fort Bliss, at which Majors Frederick S. Wright, Thomas E. Scott, Chester R. Haig, Thomas D. Hurley and Captains Charles F. Davis, William W. McCaw and James A. Orbison took part in the discussion. Supper was served at the hospital at the close of the clinic.

UTAH

Society Election.—At the annual meeting of the Salt Lake County Medical Society, December 10, the following officers were elected for the ensuing year: president, Dr. Archibald A. Kerr; Dr. John Z. Brown, vice president; Dr. Maurice M. Critchlow, secretary, and Dr. Joseph E. Jack, treasurer.

WEST VIRGINIA

Personal.—Dr. George M. Lyon, Huntington, was acclaimed champion golfer of the Southern Medical Association at the annual meeting in Washington, recently. He was awarded the McLean Post cup.——Dr. Alfred Friedlander of the University of Cincinnati College of Medicine, read a paper before a joint meeting of the Cabell and Kanawha county medical societies at Huntington, November 8.

WISCONSIN

Personal.—Dr. A. Elmer Myers, Superior, has been elected president; Dr. Joseph R. Kuth, vice president, and Dr. George H. Conklin, secretary-treasurer of the Interurban Academy of Medicine of Duluth and Superior.——Dr. Clesson C. Atherton, Kankakee, has been appointed superintendent of the Southern Wisconsin Colony and Training School, to succeed Dr. Henry G. Werner, resigned.

Package Libraries.—The extension division of the University of Wisconsin through the cooperation of the state medical society has established a package library whereby any physician in the state will be loaned a "package" for two weeks on his application. Although established but one month, several packages on the following subjects are now ready for distribution: Cancer, diphtheria, vaccination, periodical physical examination, insulin, fractures of the long bones, treatment of infection and sensitizational disease with foreign proteins, and control of communicable diseases.

"Health Institute" Examinations "Searching."—It appears that the Milwaukee Health Institute, which recently closed following the arrest of "four doctors and employees" advertised, "Our Examinations are Searching." The Milwaukee *Journal* commenting on this part of the advertisement said: "The patient is received in an outer office by a young 'doctor' who gets the history of the patient and makes the first casual examination. The patient is then told to strip and to step into an adjoining room where another 'expert' will examine him. The man does this, leaving all of his clothes in the office with the first doctor, who promptly goes through the pockets to find out how much money the patient has on his person and how much the down payment for treatment will be." Dr. Wallace A. Reinhardt, arrested in connection with the exposé of the institute, is said to have been involved also in the prosecution of the "Wisconsin Medical Institute" in 1908 when he is said to have signed an agreement not to practice in Wisconsin "under the names of any medical institute or corporation."

CANADA

Memorial Entrance for McGill.—Lady Roddick has donated $50,000 for the erection of an imposing entrance to the grounds of McGill University in memory of her husband, the late Sir Thomas Roddick.

Society News.—The annual meeting of the Manitoba Medical Association was held recently in Brandon, under the presidency of Dr. S. J. S. Pearce. The following officers were elected for the ensuing year: president, Dr. Gordon S. Fahrni, Winnipeg; Dr. William J. Elliott, Brandon, and Dr. Ross Mitchell, Winnipeg, vice presidents, and Dr. Norman W. Warner, secretary.——At the annual meeting of the Victoria (B. C.) Medical Society, Dr. Morton J. Keys was elected president and Dr. Gordon C. Kenning, secretary.

Special Convocation for Banting and Macleod.—At a special convocation of Toronto University, November 26, the honorary degree of Doctor of Science was conferred on Professors Frederick G. Banting and John J. R. Macleod. The governors of the University gave a banquet in the evening to celebrate the award to their compatriots of the Nobel prize. About four hundred graduates of the university and representatives of various public bodies attended. Among those at the head table were: the chancellor, Sir Edmund M. Walker; the president, Sir Robert A. Falconer, LL.D., Prof. Lewellys F. Barker, Johns Hopkins University Medical School, Baltimore, Prof. Archibald B. Macallum of McGill University, the attorney general of Ontario, Mr. W. J. Nickel, the two guests of honor, and Mr. Charles H. Best. On rising to speak, Banting and Macleod were given ovations.

GENERAL

Honorary Fraternity.—Two new chapters of the Alpha Omega Alpha Honorary Fraternity have just been installed at the University of Oregon and New York University, making a total of twenty-nine chapters, all of which, except two which are at Canadian universities, are in the United States.

Railway Association Formed.—The surgeons of the Great Northern Railway formed an association in November. Dr. Portus Baxter, Libby, Mont., was elected president; Drs. R. Simpson, Winnipeg, Man., Canada; John G. Cunningham, Spokane, Wash., and Roscoe C. Webb, Minneapolis, vice presidents, and Dr. Harold E. Hullsiek, St. Paul, secretary-treasurer. The association will be known as the Great Northern Railway Surgeons Association and the next meeting will be held in Spokane in June, 1924.

Test Case for Medical Beer.—The government filed a brief, December 21, with the supreme court which denied the right of physicians to prescribe beer. Defending the constitutionality of the Willis-Campbell antibeer law, the brief signed by Solicitor General Beck and Mrs. Mabel Walker Willebrandt, in charge of prohibition prosecutions, declared that beer has no medicinal value and that its prohibition under physicians' prescriptions was necessary to enforce national prohibition. The case which is an appeal is expected to be also a test case that will result in a final determination of the legal right to prescribe beer as medicine.

Motorists Warned Again.—With the coming of winter, the Department of the Interior has issued a warning to motorists who permit their engines to run in closed garages. It is a common practice, on cold days, to allow the engine to run for five or ten minutes before leaving the garage, in order to warm up the oil and water. This is an extremely dangerous practice and cases are reported frequently where the driver is found dead at the wheel. If it is desired to warm up the engine, all windows and doors should be opened, or better still, the car should be driven into the open air where the toxic exhaust gases are quickly dissipated. Four tenths of 1 per cent. of carbon monoxide, that is, 4 parts per thousand, will kill an ordinary man in one hour, it is said, and a higher concentration will prove fatal in a much shorter time. Automobile tests made at the Pittsburgh experiment station of the Bureau of Mines show that the amount of carbon monoxide present in the exhaust gases varies from 2.4 to 9.5 per cent. The air in a closed garage will reach the danger point in a very few minutes.

Government Hospital Report.—The report of St. Elizabeth's Hospital, Washington, D. C., for the year ending June 30, 1923, reveals a total population on that date of 4,108, an increase of 208 since the corresponding date of 1922. Admissions during the year have increased by 176 to 1,027; the deaths numbered 282, a decrease of two. The ratio of colored to white men is 1:4, the corresponding ratio for women being 1:1.6. It is interesting to note that the ratios for cases of general paralysis were 1:8 for the men and 1:1.2 for the women, suggesting that this disease was twice as prevalent in white men as in colored men, but less prevalent in white women than colored women. [illegible] the ye[illegible] os-pital has initiated treatment of g[illegible] lysis [illegible] a-tion with the malarial plasm[illegible] Jauregg of Vienna. No resu[illegible] in [illegible] Another feature of the year [illegible] inau[illegible] a psychiatric training school for physicians, nurses and social workers connected with the U. S. Veterans' Bureau.

National Immigration Conference.—The National Immigration Conference, which met, December 13 and 14, in New York, resolved itself into a constructive means of placing on record recommendations for an orderly and broad revision of the immigration laws. More than 500 persons attended the sessions of the conference. The conference took no formal notes and entertained no formal motions. The sessions indicated that industrialists favor a sound immigration policy which extends the present Per Centum Limit act for a few years. The admission of the wife and minor children arriving with an admissible alien or subsequently joining him in the United States without being charged to quotas if otherwise admissible was favored in order to promote family unity. The policy of encouraging quality immigration rather than quantity was also favored, and a proper system of selection was urged but no definite plan of selection was put forward. The appointment of an advisory commission by President Coolidge under a resolution of Congress, to report to Congress through him was discussed. A complete stenographic transcript of the conference is being published by the National Industrial Conference Board, and will soon be available for distribution on request.

Society News.—The annual meeting of the American Association for the Study of Goiter will be held at Bloomington, Ill., Jan. 23-25, 1924, under the presidency of Dr. E. P. Sloan of Bloomington. Commander William S. Bainbridge, U. S. Navy; Dr. Wayne Babcock, Philadelphia; Dr. George Van Amber Brown, Detroit; Dr. William Engelbach, St. Louis; Dr. Andre Crotti, Columbus, among others will give addresses. Operative clinics will be held at the St. Joseph and the Mennonite hospitals. The general sessions, exhibits and registration will take place at the Unitarian Church.——The next annual meeting of the American Urological Association will be held at Atlantic City, N. J., May 26-28, 1924.——The annual meeting of the American Students Health Association will be held in Cincinnati, Jan. 1-2, 1924, under the presidency of Dr. Joseph E. Raycroft of Princeton University. Among the speakers will be Dr. William G. Donald of the University of California; Dr. Wade MacMillan, Miami University; Dr. Robert J. Cook, Yale University, and Dr. Charles W. Goddard of the University of Texas.——The next annual meeting of the Western Electro-Therapeutic Association will be held in Kansas City in April under the presidency of Dr. Harry H. Bowing, Rochester, Minn.

Columbian Institution for the Deaf.—The sixty-sixth annual report of the Columbian Institution for the Deaf, to the Secretary of the Interior, states that in the advanced department of the institution known as Gallaudet College, there were eighty-two men and fifty-two women under instruction, representing the District of Columbia, Canada, and thirty-three states. This is a total increase of twenty students compared with the preceding year. In the primary and grammar department, known as the Kendall School, there were eighteen boys and twenty-six girls under instruction, which is a total decrease of four compared with the preceding year. There were discharged from the institution, thirty males and twenty-six females, and thirty males and twenty-three females admitted. The most pressing need of the institution, the president states, is a larger appropriation to assure the retention of experienced teachers and employees to care for the larger student body. It has been necessary for the last three years to maintain a waiting list of desirable candidates because of lack of housing facilities in the advanced department. All deaf mutes of teachable age, of good mental capacity, and belonging properly to the District of Columbia are received without charge. The charge for pay pupils is $500 per annum. To students from the states, who have not the means to defray all expenses, the board of directors renders such assistance as circumstances seem to require, so far as the means at its disposal will allow.

Rockefeller Foundation.—At the regular December meeting, the Rockefeller Foundation elected to membership in its China Medical Board, Prof. Paul Monroe, Teachers College, Columbia University, and to membership in its International Health Board, Dr. John G. FitzGerald, professor of hygiene and preventive medicine, and director of the Connaught Antitoxin Laboratories, at the University of Toronto. Professor Monroe has been connected with Teachers College of Columbia University since 1897. He is professor of education and director of the International Institute recently created by the Teachers College with the object of giving special attention to foreign students and conducting investigations and research into education in foreign countries. Dr. FitzGerald received his medical education at Toronto University and did graduate work in medicine at the Harvard Medical School, Pasteur Institute, Paris, and the University of Freiburg. From 1911 to 1913 he was associate professor of bacteriology in the University of California.

Carrying out pledges previously made, the sum of $1,000,000 was appropriated to the medical school of the University of Chicago, $1,000,000 to the medical school of the University of Toronto, and $225,000 to the medical school of the University of Iowa. In addition, $500,000 was appropriated for endowment of the medical school of the University of Alberta, Canada. Appropriations were made to continue fellowships in physics, chemistry, medicine, and the biologic sciences in the United States under the auspices of the National Research Council. An estimate of the expenditures of the foundation for the year 1924 shows commitments of $10,500,000, leaving a balance of less than $1,000,000 still available for appropriation in 1924 from the regular income of the year and balances carried forward from the previous year.

FOREIGN

Centennial of Lisbon Medical Society.—The Sociedade das Sciencias Medicas de Lisboa celebrates this month the centennial of its foundation, with an historical exhibition and addresses.

Memorial to Physician.—A new pathologic department and roentgen-ray laboratory has been erected at the Cambridgeshire (England) Tuberculosis Colony, as a memorial to the late Prof. Sir German Sims Woodhead. It was formally opened November 22.

The Atkin Committee.—Dissatisfaction with the mitigation of legal penalties in the case of insane persons who commit crime in England led to the appointment of a committee presided over by Lord Justice Atkin to determine what should be the reaction of society toward mentally abnormal persons in such cases. The committee which has just issued its report, was entirely a legal one but it took medical evidence furnished in part by two medical committees, one appointed by the British Medical Association, the other by the Medico-Psychological Association. The British Medical Association committee practically recommended that the present rules should remain unaltered with a modification as to lack of control. The Medico-Psychological Association committee recommended that an insane person who committed a crime should not be held responsible unless it was proved that the mental disorder was not calculated to influence the commission of the act. The Atkin committee rejected the suggestion made by the Medico-Psychological Association committee and recommended the retention of the "McNaughton rules" which have been the foundation on which the law has been administered for many years. The committee advises however that a person should be held irresponsible for a criminal act "when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist." The interpretation of the word "substance" in this connection will, in the opinion of the *Medical Officer*, lead to "acrimonious disputes" if this is made the rule on which courts of law are to act.

Deaths in Other Countries

Dr. **Paul Oudin**, Paris, one of the pioneers in electroradiology, aged 72. He made the first roentgenogram in France, and introduced therapeutic cataphoresis. The Oudin resonator is used in wireless telegraphy as well as in medicine.——Dr. **A. C. Faartoft** of Nykøbing, Denmark, a leader in the organization of the profession and in public health work, aged 80.——Dr. **G. Linossier**, of the medical faculty at Lyon and member of the editorial staff of the *Paris médical*.——Dr. **Guillaud**, emeritus professor of materia medica at Bordeaux.——Drs. **C. Matthey** and **H. de Montmollin**, Neufchâtel, aged 64 and 81, respectively.——Dr. **A. Rist**, Versailles, the father of Dr. E. Rist, Paris.——Dr. **P. Michaux**, Paris, founder of the Fédération gymnastique et sportive, after retiring from the surgical service of the Paris hospitals on reaching the age limit, aged 69.——Sir **Lambert Hepenstal Ormsby**, former president of the Royal College of Surgeons of Ireland, and a member of the Irish senate, at his home in Dublin, December 21, aged 73.——Dr. **Zacharias de Azevedo**, S. Paulo, Brazil.——Dr. **Enrique Herraiz**, Buenos Aires.

CORRECTION

Peculiar Reactions Between the Fifth and Seventh Cranial Nerves.—In the article by W. T. Coughlin on this subject, in The Journal for December 15, page 2019, in the fourth paragraph the word "nerve" appears three times, instead of the word "artery." This is also clear from the context.

Foreign Letters

BERLIN

(From Our Regular Correspondent)

Dec. 1, 1923.

Protests Against the Health Insurance Decrees

As a protest against the governmental decrees introducing modifications in the social insurance law, to which reference has been made in recent letters, an indignation meeting of physicians was held here, November 20, at which the representatives of medical societies, and Geheimrat Kraus representing the medical faculty and the Berlin scientific societies, called attention in vehement terms to the bad effects that the decrees are bound to have, not only on medical practice but also on scientific medical work. The following resolution was passed unanimously:

> The medical profession in Berlin has learned with deep indignation of the recent decrees promulgated by the federal ministry of labor. It wishes to emphasize that the representatives of the medical profession were at no time given an opportunity to express themselves on the subject. It feels that such an unusual attitude on the part of a federal board, toward a profession on whose willing and sacrificing cooperation the proper functioning of social insurance depends, is evidence of disrespect and lack of consideration, and shows plainly that the content of the decrees was not decided on with the unbiased and impartial judgment which should at all times characterize the legislative acts of a federal board. The decrees are a menace to harmonious relations between the health insurance societies and the physicians. They leave the physician almost defenseless and subject to the caprice of the executive committees of the health insurance societies; they deprive him of his professional independence; they are of such a nature as to awaken struggles with conscience in the minds of physicians; they undermine the solid foundation of the contracts on which most German physicians depend for their livelihood and which are indispensable for preserving peace between the physicians and the health insurance administrators. They hamper the much needed introduction of new blood into the panel, and thus constitute a menace to scientific research and training. The medical societies declare the decrees, as a whole, intolerable. They will never permit such attempts on the part of the health insurance societies to break down the personal or professional independence of their members, and, if necessary, will not hesitate to resort to severe retaliatory measures. For any and all consequences that may arise from such eventualities, the blame would lie first and foremost at the door of the body responsible for these decrees.

In many other places simultaneously, protests were raised by the medical profession. Fortunately, these protests have not fallen on deaf ears but have received the endorsement of several political parties. In fact, the legislature of Prussia passed a resolution, November 30, requesting the federal government to nullify the decrees of the federal minister of labor. In the meantime, however, the executive committee of the Leipzig League has passed a resolution canceling the contracts with the health insurance societies, and consequently not only the panel physicians in Berlin, but presumably in most parts of the country, have served notice of cancelation on the health insurance societies, so that with the first of December begins a period in which the relations of the health insurance societies and the panel physicians are no longer governed by contract. Patients insured in the health insurance societies will not be treated by the panel physicians in return for capitation fees but, if at all, only as private patients. The federal government, with a view to lessening the objections to the decrees, has issued several orders during the last few days, and there is scarcely a doubt that it will take further steps to meet the demands of the physicians. Doubtless, either the decrees will be rescinded or their most objectional features will be eliminated.

Marked Decrease of Births in Berlin

The birth rate for the third quarter of 1923 is only 9 per thousand of population, or, reducing it to a yearly basis, only one third of the birth rate of the prewar period; it is without doubt the lowest birth rate ever recorded in a city. The number of births for the year 1922 was about 8,000 less than the deaths. It is estimated that the loss in population for the year 1923 will amount to 12,000. The causes for the decrease in births are various. The main cause is to be sought in the general poverty of the people, which makes an addition to the family a luxury, so to speak. Next in importance come the bad housing situation, with the unspeakably crowded quarters, and the extremely high cost of medical attendance, medicines, bandages, etc. To these conditions may be ascribed the fact that an increasingly large percentage of confinements take place in institutions. In Greater Berlin, in 1919, 5,600 women (10 per cent. of all confinements) were delivered in institutions; in 1920, 7,700 women, or 12 per cent. of all confinements; in 1921, 9,100 women, or 16 per cent. of all confinements. This rate of increase has continued approximately in 1922 and 1923. A separate delivery ward was established in the Moabit Hospital, October 17. The funds for changing the old operating ward into a modern delivery ward were derived from private subscriptions. The municipality made no contributions whatever. The ward has been named, in honor of the chief contributor, the Moritz Griess Pavilion.

Personal

November 26, Sudhoff, professor of the history of medicine in the University of Leipzig, celebrated his seventieth birthday. Like many other eminent investigators, he was formerly a general practitioner. He graduated in medicine in 1876, and in 1878 settled in Frankfort as a general practitioner. From 1883 to 1905, he enjoyed an extensive practice in Hochdahl. A good share of his income was used for the purchase of books; particularly, original sources of the history of medicine. On the material thus collected was based his well known work, "The History of Paracelsus of Hohenheim," published in 1887, the appearance of which gained for him recognition as a good historian of medicine. Sudhoff has devoted much time and study to Paracelsus and has made extensive investigations into medical literature and the natural sciences of the Occident, particularly during the renaissance period. He has visited Italy, England, France, Holland, Belgium and the Scandinavian countries. The reputation that Sudhoff has acquired among students of the history of medicine, by reason of his biographic studies on the life and works of the hitherto little appreciated Paracelsus, found its expression when, in 1905, he was called to assume the direction of the newly founded institute of research for the history of medicine, the establishment of which was made possible through funds furnished by the Puschmann Foundation. In this institute he has produced a number of important works, among others, "Medical Allusions in Papyrus Documents," "Contribution to the Study of Surgery of the Middle Ages," "Medical Therapeutics in the Middle Ages," and a large treatise on the epidemics of the middle ages—plague, leprosy and syphilis. On the occasion of the Goethe celebration in Düsseldorf, he arranged an interesting exhibit, and an even more important one on the history of medicine at the international hygiene exposition in Dresden. Some of his leading textbooks are an "Introduction to the History of Medicine," and his short "Handbook of the History of Medicine." He is also the founder of the Deutsche Gesellschaft für Geschichte der Medizin und Naturwissenschaften, of which he has been thus far the president. In the Gesellschaft der Deutschen Naturforscher he succeeded in establishing a special section of history of medicine.

November 30, Professor Gluck reached the age of 70. His first name, Themistocles, is explained by the fact that he was born in Roumania. In 1877, he was director of a garrison during the Russo-Turkish War, and later, that same year, he became an assistant in the surgical department of the Berlin Municipal Hospital at Friedrichshain. He afterward accepted a post in the university surgical clinic und Langenbeck and Bergmann. In 1882 he be [illegible] ins [illegible] in the

University of Berlin, and was later appointed director of the surgical department of the Kaiser Friedrich Hospital in Berlin. Gluck early acquired a reputation in the field of plastic surgery. His practical and theoretical studies on bone and joint transplantation did not, for many years, receive much recognition; only in recent years have his researches been confirmed by others. His work in the field of resection and extirpation of the larynx, with the substitution of an artificial larynx, has been more generally recognized. His work on nerves, particularly neuroplasty, has had considerable influence on this field of investigation. In 1883, Gluck gave the first description of a sterilizable, metal instrument case. His articles on gunshot wounds of the heart and on surgery of the lungs are worthy of note.

December 8, Professor Stadelmann will celebrate his seventieth birthday. Soon after his admission to practice, he became, in 1878, an assistant in the medical department of the university clinic in Königsberg. In 1881, he accepted a position as instructor in the University of Königsberg, and in 1884 he went to the University of Heidelberg, where he filled a similar post in the medical department of the university clinic. In 1888 he was given the chair of clinical propedeutics in Dorpat. Owing to the widening use of the Russian language and the growth of Russian influence at this university, he was obliged, in 1894, to give up his position, and, in 1895, he became medical director of the Urban municipal hospital in Berlin. In 1903, he succeeded Professor Fürbringer as medical director of the department of internal medicine in the Friedrichshain municipal hospital in Berlin. Stadelmann's chief work has been in the field of the pathology of metabolism, and deals more particularly with diseases of the liver. In 1890, he published a monograph on "The Influence of Alkalis on Metabolism in Man"; in 1891, another on "Icterus and Its Various Forms," and, in 1894, a third on "Peptonuria." In Leyden's Handbook of Dietetics he contributed the article on diseases of the liver and pancreas. Three years ago, pursuant to the provisions of the old age pension law, he was obliged to resign from the municipal hospital.

LONDON

(From Our Regular Correspondent)

Dec. 3, 1923.

An Expert on Fleas

The death of N. C. Rothschild, a member of the family whose eminence is not confined to the sphere of finance, has removed an indefatigable pioneer in a previously unexplored field of entomology that is of considerable medical importance. Like his brother, Lord Rothschild, he showed a love for natural history from childhood. While he was still a school boy, some microscopic slides of fleas aroused his curiosity. He tried to identify the few species he possessed, but found that practically no research on this subject had taken place in Britain since the days of Curtis and Bennet Westwood early in the nineteenth century. The discoveries of Manson and Ross of the part played by blood-sucking insects in the propagation of disease stimulated him, and he made a remarkable collection of various species of fleas. These were arranged and catalogued in the Rothschild Museum at Tring, and Dr. Karl Jordan undertook the drawing of the morphologic parts by which the various species can be recognized, and became a valued collaborator. It was the minute studies of the Rothschild collection that brought to light the fact that in India there are three species of rat flea, of which only one is the carrier of plague, thus explaining the puzzling discrepancy that plague was epidemic only in patches. They also showed that there are several species of bird flea, living on different hosts, though only one had been recognized. As long ago as 1895, Mr. Rothschild began to write on fleas, and altogether published no fewer than 138 articles, mostly in collaboration with Dr. Jordan. The result of their work is that the number of known species of fleas has been extended from 135 to 680. The Tring collection now contains about 600 species. The forms not represented there have mostly been described in Russia and the United States. Only a few months before his death, Mr. Rothschild corresponded with Russian scientists and collectors with a view to obtain some of the species lacking. He had planned a catalogue in which every species would be described and illustrated. The collection contains about 3,550 microscopic slides and 40,000 specimens preserved in alcohol, besides 20,000 duplicates of common species. Forty-six species of flea are known to occur in Great Britain, where these parasites have been studied more thoroughly than in other countries. Two have been introduced—one on the brown rat and the other on the American gray squirrel. Mr. Rothschild did not confine his work to fleas, though this was his great contribution to science, but extended it to other blood-sucking insects. By a deed of gift, executed in 1913, he presented his collection to the British Museum.

The Depopulation of the Pacific

At the recent Pan-Pacific Congress, Dr. R. W. Cilento read a paper on the depopulation of the Pacific. He pointed out the considerable numbers, high state of development and great natural abilities of the inhabitants of the Pacific regions, as emphasized by the early explorers, and their constant and rapid diminution since the entry of the white man. The Tahitians, estimated in 1774 to number 150,000, in 1899 were reduced to 10,000. The Maoris decreased from 120,000 in 1840 to 40,000 in 1891. In the mandated territory of New Guinea, one district of which he had personal knowledge, the excess of births over deaths in a population of 9,600 was only 268. Dr. Cilento attributed the decrease to three factors—disease, economic and social factors, and psychologic factors. Great numbers fell victims to insect-borne diseases. Tuberculosis and other pulmonary diseases were very common, and malaria caused a large mortality among children. Hookworm disease was universal and reduced the resistance to other diseases. Gonorrhea was very prevalent, and yaws in many districts attacked all the children. Influenza, dysentery and measles had been introduced into one or more of the islands, with appalling results. A German investigator, reporting on the decline of races in German New Guinea, said that the native population was not degenerate but sick. Among the economic and social factors were indisposition of the natives to have families, and consequent abortion and infanticide, unnatural practices, venereal disease, the recruiting of males for labor in other lands, and the cessation of tribal hostilities. The ultimate fate of the Polynesian and Melanesian races would be extinction unless measures to cope with these factors were adopted at once.

In the discussion that followed, Judge Murray, administrator of Papua, said that some influences of a subtle character tended to depopulation. White settlement caused certain moral and material disturbance in the life of the native. The moral disturbance was caused by disappearance of the old native customs and traditions, which had been the refuge and protection of men and women for generations in times of stress. Along with the good factors of sanitation and medical treatment, civilization brought disease, alcoholism and drugs, particularly opium. The use of alcohol and opium by natives was forbidden, and the regulation was rigidly enforced. The suppression of native habits and institutions caused the native to lose interest in life, and if he had nothing to live for he would die. There was difficulty in keeping native institutions alive. Some, such as cannibalism and head hunting, were out of the question. In some islands the latter custom had been the keystone of the social structure. But other customs should be fostered. Contact with the white man inevitably under-

deaths thus far, although thirty were apparently moribund. The ages of the children ranged from 3 to 15, but most of them were between 12 and 14 years of age. As in the adult, the indications are strict unilaterality of the parenchymatous lesions; adenopathy is always bilateral.

MANAGEMENT OF ABNORMAL CHILDREN

The problem of abnormal children was the subject of an extensive study by Dr. Decroly. The discussion took place at the medicopedagogic institute of Rixensart, organized by the Oeuvre nationale de l'enfance, and illustrated the methods advocated by Decroly. The two essential factors to be considered are heredity and environment. The treatment presents two aspects: the medical, which is concerned with the physical side, and the educative, which addresses itself rather to the social and mental side. The medical treatment comprises general hygiene, proper feeding, and various measures to build up the organism, and combat bodily disorders and anomalies (organotherapy, orthopedic treatment, etc.). The educative management may be subdivided into: (1) sensory education; (2) education of the emotions; (3) general intellectual training; (4) speech culture; (5) vocational guidance and vocational preparation.

Most abnormal children when quite young may be brought up in the family circle, as all they require is some one to look after their material welfare and provide the physical necessities of life. The family should, however, be counseled in regard to the treatment of the child to avoid causing harm by blundering, negligence, weakness or by violent measures. When the child reaches school age, it is necessary to determine whether he can be admitted to the ordinary classes. In some cases, however, the family circle is incapable of providing the necessary education. The child may be so abnormal that its education cannot be carried on at home without injury to the normal children. Hence the necessity of organizing several types of institution for abnormal children. The various modes of assistance depend on the age, the character, the anomalies, the future prospects and the possible initiative of the children. Dr. Decroly stated that good results had been secured at the institute, which justify the efforts of the Oeuvre de l'enfance. He pointed out that (1) children had become capable of living in the family and taking part in the family life, and (2) many of the children had been trained to support themselves.

INTUSSUSCEPTION

Dr. Massart emphasized the need of early diagnosis in intussusception, stating that this was the only chance of successful treatment in infants. For any hope of success, operation must be performed within twenty hours. An early diagnosis should be based on (1) the appearance of melena; (2) pain, which becomes especially significant when it appears suddenly, is severe and disappears suddenly (sudden disappearance of the pain may allay the initial fears); (3) vomiting, which usually accompanies the sudden and intense pain and points to the urgent need of surgical intervention, and (4) the sausage-shaped swelling that comes later and is almost superfluous as a sign, since it appears after the diagnosis is established. No matter how skilful the surgeon or how slight the operative shock, operation after the twentieth hour means a doubtful outcome. In children the symptoms vary greatly. When acute, the affection often simulates chronic appendicitis; one type resembles tuberculous peritonitis, owing to the slow evolution of either constipation or diarrhea, often accompanied by cachexia.

In discussing Massart's paper, Dr. Veau made some pertinent comments on the part played by physicians and surgeons, respectively. Intussusception is of prime interest only to the physician; the duty of making the diagnosis is his, and, secondly, he must urge the need of surgical intervention. Veau regards operation in these cases as more urgent than in hemorrhage.

DIABETES IN CHILDREN

Infantile diabetes was the subject of an interesting communication by Drs. B. Weill-Halle and H. Chabanier. The effectiveness of treatment with insulin prepared according to the method of Chabanier, Lobo-Onell and Lebert was manifest. Glycosuria dropped in a few days from nearly 100 gm. to zero, while acetonuria of 100 mg. disappeared after the first day of treatment. The writers emphasized the harmlessness of the large doses they use, which are adapted to a diet rich in carbohydrates.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 1, 1923.

Insulin

Insulin is being manufactured in the bacteriologic laboratory of the national health department, according to a method suggested by Dr. A. Sordelli. A pancreas extract prepared by the methods of Somiogy, Doisy and Shaffer is precipitated with picric acid; the picric acid is then extracted from the precipitate with acetone or adsorbed with silk. The resulting product is purified by iso-electric precipitation. The national health department has appointed a commission consisting of M. R. Castex and P. Escudero, clinicians, A. Bachmann, bacteriologist, B. A. Housseay, physiologist, and A. Sordelli, biologic chemist, to study insulin, train physicians in its administration, and suggest standards for its manufacture, standardization and use. The commission has already studied many cases and carried out a number of experimental investigations. Its report is about to be written. Dr. Sordelli has been asked to present a paper on insulin at the annual congress to be held by the Argentine Medical Association, November 6.

University Conditions

In 1918, the government, changing the plan submitted by the university authorities, ordered that the directing boards, deans and supreme university board be selected at an assembly, at which professors, assistant professors and students would have equal representation. As the students always voted as a unit, they always won by securing a few professorial votes. When they did not succeed, they filed a protest and went on strike. From the beginning, most professors refused to attend such elections, as they considered this mixing of professors and students detrimental to discipline. The recent disturbances at Rosario and Cordoba caused Dr. Marco, the secretary of education, to put in force vigorous measures and to require the three groups to hold separate elections. Since then there has been no trouble at either school.

At Buenos Aires, in accordance with a plan submitted by Dr. A. Lanari, the university put the matter up to the different faculties. Most of them asked for a similar division, a change also supported by the majority of professors—four fifths of those in the medical school. The supreme board, however, under the influence of the students, adopted a halfway plan, and provided for separate elections when selecting members of the directing boards, but joint elections for the selection of deans or members of the supreme board. When this scheme was submitted to the secretary of education, almost all the professors of the law school and the majority (109) of those in the medical school asked for a complete separation of professors and students in order to put an end to mutual concessions and compromises. This action initiated a campaign of opposition on the part of some incumbents, and caused threats from students that if the original plan was not approved they would go on strike. It was claimed that the government was bound to respect the self-governing powers of universities, although the fact that such powers had already been tampered with in 1918, when the present trouble started, was overlooked. The secretary sided with the professors. Student pressure, political influence, the proximity of elections and the president's avowed purpose of respecting the universities' self-governing powers brought about the rejection of the secretary's plan, and incidentally caused him to resign. Dr. Sagarna has been appointed to his place.

In the Buenos Aires medical school, elections were held under the new law. The professors elected, as members of the board, A. Peralta Ramos, B. A. Houssay, M. Aberastury, C. Durante Avellanal, P. Belou and E. Segura, and the students, Rophille and F. Basalvilbaso.

Infant Mortality

According to the records of the national health department, mortality among infants under 2 years of age is still very high all over the country, 13.2 per hundred. At Mendoza it is 22 per hundred; San Juan, 24; Tucuman, 24; Salta, 25, and Jujuy, 29. In the federal capital (Buenos Aires), it is only 10.3 per hundred, and in Buenos Aires province, 10. There is, however, an improvement of 9 per hundred over 1911. In those provinces showing the highest figures, either malaria or alcoholism is prevalent, there are many illegitimate births, and "healers" are much in favor. The national health department has recommended the organization of a bureau of eugenics and child welfare, to coordinate the activities of present institutions and agencies. A number of infant welfare stations have been opened in several provinces.

Leprosy Prevention

A division has been organized for the control of leprosy. Its duties will include a survey of existing cases, hospitalization or home isolation, and continued surveillance of patients, detection and deportation of infected immigrants. A bill on this subject, prepared by M. Aberastury, has been introduced in congress by the government.

Foreign Visitors

Profs. J. J. Abel of Johns Hopkins University, H. Roger, dean of the Paris medical school, S. Recasens, dean of the Madrid medical school, and Lustig of Florence have been visiting in Buenos Aires. Professors Abel and Roger were appointed honorary members of the biologic society, and Professor Roger and Recasens were made members of the academy of medicine. At this time a special session was held by the academy as a tribute to Cajal. Dr. Abel remained here only a short time, but his visit was much enjoyed. After these visitors, Professor Alessandrini of Rome arrived to give several lectures.

Municipal Health Services

During the year 1922, 57,508 patients were attended in the Buenos Aires municipal hospitals; 59,589 operations were performed; 7,051 cases of labor were attended, and 102,493 dental examinations were made. In addition, there were 956,525 dispensary calls and 136,459 first aid cases. There are nine maternity hospitals with 544 beds, forty-four physicians, fifteen midwives and seventy-four nurses; and twenty-three infant homes and dispensaries with twenty-eight physicians, twenty-one special nurses (practicantes) and 118 employees. A total of 20,000 children were cared for and 3,291,315 rations distributed. The Jenner Institute, with eighteen physicians, sixty special nurses and thirty-four nurses, has vaccinated 59,256 persons and revaccinated 180,727. The Pasteur Institute, with four physicians, two veterinarians and eight employees, attended 7,282 patients, gave antirabic treatment to 2,680, and examined 4,997 animals. At the tuberculosis dispensaries, 6,500 patients were treated and 14,000 kg. (30,837 pounds) of bread, 8,000 kg. (17,951 pounds) of meat, 15,000 quarts of milk and 2,200 dozen eggs were distributed. In the fifteen venereal dispensaries, twenty-one physicians and seventy employees attended 152,100 patients.

HOLLAND

(From Our Regular Correspondent)

Nov. 21, 1923.

Hot Weather and Mortality

The central bureau of statistics has published some figures concerning the effect of the heat wave of last July on public health. In July, 1922, and in June, 1923, the mortality per thousand inhabitants was 8 and 9, respectively; in July, 1923, it reached 10.8 per thousand. The heat wave lasted only a week, but the mortality for this single week was more than a third of the total mortality, 6,564, for the month of July. Cerebral hemorrhage caused 484 deaths, almost 200 of which occurred during the week of great heat. The total number of deaths from heart affections was 617, of which 221 occurred during the hot wave. Infants less than 1 month old did not suffer from the excessive heat, but the effect on children between 1 and 4 years of age was marked. There were 275 deaths from sunstroke or heatstroke. Towns of less than 20,000 inhabitants appeared to suffer more than the larger cities.

Tuberculosis at Amsterdam

In a comprehensive report presented to the Société pour l'avancement des sciences médicales at Amsterdam, Dr. Stumpff discussed and illustrated with a series of charts the changes in mortality from tuberculosis at Amsterdam during the last twenty years, and compared them with conditions in the rest of Holland. It may be said in general that both curves show a continuous though not a regular descent. The mortality dropped from 21 per 10,000 inhabitants to 12.5. This decrease was progressive, in the main, but was interrupted by a sharp increase between 1915 and 1919, reaching the peak of 23 per 10,000 in 1918. This sudden increase was ascribed to defective nutrition, to bad housing conditions, and to the nervous tension from which the people suffered during the war. In the rapid fall from the mortality rate for 1918 (23) to that for 1921 (12.5), it is evident that improvement in the food supply and the suppression of fear played an important part, for the bad housing situation still remains unsolved. In a table covering the records for the years 1920 and 1921, the author compares the frequency of pulmonary localizations with localizations in other organs for the different age groups. The highest percentage of tuberculosis other than pulmonary is found in infants under 1 year of age; on the other hand, pulmonary tuberculosis occurs most frequently in persons between 50 and 65 years of age. Finally, one of the most practical findings of this investigation concerns the effect of the social status on the liability to contract tuberculosis, a relationship which is brought out most plainly by considering the character of the residence occupied. It may occasion some surprise to learn that the poorest quarters of Amsterdam do not yield the highest percentage of tuberculosis mortality; this is associated rather with quarters in which are the oldest and the least sanitary houses. From the standpoint of urban hygiene, this is a valuable observation.

Transplantation of the Biceps Femoris Muscle

Before the Société clinique of Rotterdam, Dr. Van Assen presented recently a case of total transplantation of the biceps femoris muscle in a case of paralysis of the quadriceps. All nerves and blood vessels were conserved. The proximal tendon of the long head was [illegible]ched to the periosteum of the femur opposi[illegible] se[illegible] the gl[illegible]nus. The distal tend[illegible]c p[illegible]f the quadriceps. Six months have elapsed since the operation, and active motility is increasing daily.

Sanitary Conditions in Surinam

In spite of the incessant crusade against leprosy in Surinam, this disease continues a serious menace. In a report giving a survey of health conditions in the colony, Dr. Wolff calls attention to the meager success that has attended the efforts to stamp out leprosy. Three leprosariums have been established, and the number of cases at present may be estimated at upward of 700, a large number for a population of little more than 100,000. The greatest obstacle to the success of the antileprosy campaign is the indifference of the natives toward infection, in which ignorance of the cause and superstition play a big part; for instance, lepers have been found continuing their trade as lye-washers and shoemakers.

Trachoma is also widespread, especially among school children. Of 5,918 children from 5 to 16 years of age in Paramaribo, 983, or 16.6 per cent., were affected. In some districts, the percentage may be as high as 47 per cent. But the campaign against this disease—particularly, active treatment—is producing very encouraging results.

Leukoplakia and Radium

In presenting a case of nonsyphilitic leukoplakia buccalis, Dr. Van Gangelen reported to the Société néerlandaise d'oto-rhino-laryngologie encouraging results with the use of radium. Three applications had caused the leukoplasic lesions to disappear. As it is generally admitted that nonsyphilitic leukoplakia is a precancerous state, the good results of radium treatment are of interest. Early detection of leukoplakia may diminish the mortality rate from cancer of the tongue.

PEKING

(From Our Regular Correspondent)

Nov. 15, 1923.

Visiting Professors

The following distinguished men have been appointed temporarily to the staff of the Peking Union Medical College: Dr. L. Emmett Holt, clinical professor of the diseases of children, Columbia University College of Physicians and Surgeons, New York; Dr. C. U. Ariëns Kappers, director of the Central Dutch Institute of Brain Research in Amsterdam, Holland; Dr. William T. Councilman, Shattuck professor of pathologic anatomy, Medical School of Harvard University, Boston; Dr. Adelbert Fuchs, clinical professor of ophthalmology at the University of Vienna, Austria, and Dr. William W. Cort, associate professor of helminthology, Johns Hopkins University School of Hygiene and Public Health, Baltimore.

Hookworm Survey in China

During the past summer a project for the investigation of hookworm disease in China was launched under the joint auspices of the department of pathology of the Peking Union Medical College and the International Health Board of the Rockefeller Foundation. Dr. W. W. Cort and Dr. J. B. Grant are cooperating in the direction of this work. Dr. Cort has been carrying on similar investigations in the West Indies for the last three years. Dr. N. R. Stoll, who was recently appointed associate in parasitology on the staff of the Peking Union Medical College and who took part in the West Indian expeditions, will devote his entire time to the work. In addition, two Chinese physicians and several technicians have been employed. A field laboratory has been established at Soochow Hospital, where both laboratory and field work were started, July 1. Early in August, Dr. Cort and Dr. Grant proceeded to Chefoo, where a survey was made with headquarters at the Temple Hill Hospital. Later in the year, work will be undertaken at Canton in cooperation with the Canton Christian College. It is planned to carry on this work in China until about October, 1924. The investigations center about the problem of the relation of the various methods employed in fertilizing the soil to the spread of hookworm disease. In connection with this problem, epidemiologic studies are being made in country districts for the purpose of determining the extent and severity of hookworm disease and the factors influencing its spread. In the laboratory phase of the work, the attempt is being made to follow the life of the hookworm eggs and larvae in night soil stored under various conditions, with the object of devising methods to prevent the spread of hookworm disease by the use of this material in fertilizing the crops.

Japanese Investigators

The great earthquake and fire in Japan destroyed many of the laboratories of medical research in Tokyo. Valuable apparatus and records were destroyed, and a large number of Japanese scientists were deprived of all facilities for work. Among the units of the Imperial University which were completely destroyed were the buildings which housed the departments of physiology, pharmacology and biochemistry. Accordingly, an invitation was extended to a group of these men by the Rockefeller Foundation to come to Peking to continue their investigations in the laboratories of the Peking Union Medical College. Eight men from the Imperial University and the Imperial Institute for Infectious Diseases were appointed by the authorities of the university in Tokyo, and they have now begun their work in the laboratories of pharmacology, physiologic chemistry and bacteriology. The party is headed by Dr. Nukada, professor of pharmacology of the Imperial University of Tokyo.

The Third Asiatic Expedition

Dr. Henry Fairfield Osborn, director of the American Museum of Natural History, has recently returned from Mongolia, where he joined the third Asiatic expedition for a short period to observe its activities in paleontologic research in the Gobi Desert. Evidence has been obtained that the Mongolian plains were the original sources of mammalian life, a theory presented some years ago by Dr. Osborn, and now believed to be demonstrated conclusively by the fossil findings of this expedition. Apparently, this region has changed little during several million years so that fossils covering that period are found in the comparatively shallow depth of 150 feet. Many fossils of large reptiles and mammals have been found and are being removed and sent to New York. No significant findings of human remains have as yet been reported.

The Fifth Congress of the Far Eastern Association of Tropical Medicine

In September, 172 delegates from all the tropical countries of the Far East as well as China, Japan and Australia came together at Singapore to meet in the congress of the Far Eastern Association of Tropical Medicine. The scientific papers that were delivered were largely on questions relating to public health. The diseases chiefly under discussion were beriberi and malaria. Resolutions were passed urging the governments of the countries that were represented to take official action for the control of beriberi, with particular reference to the standardization of rice, the transportation and storage of rice, and other practical methods of improving the diet of the general population. Discussion of antimalarial measures emphasized the necessity of the preliminary study of the types of anopheles present in any region, and a determination of the types that are acting as the agents of transmission. These vary markedly in different areas, and the habits of the individual types vary to such an extent that measures directed against one type are totally inadequate against another.

Marriages

Arthur M. Hebb, Dartmouth, Nova Scotia, to Miss Grace Elizabeth Cruise of Port Dover, Ont., October 1.

John B. Leisure to Mrs. Edna Kirby, both of Watonga, Okla., at Oklahoma City, in November.

John Richard Porter, Lebanon, Ind., to Miss Ethel Johnson of Terre Haute, November 17.

Arthur H. Weiland, Cedar Rapids, Iowa, to Miss Ruth Clayton of Chicago, November 10.

Lawrence D. Smith, Woodward, Iowa, to Miss Muriel Drake of Des Moines, October 9.

Daniel Collier Elkin, Boston, to Miss Helen McCarty of Atlanta, Ga., November 3.

William A. Hoffman to Miss Mary Alice O'Leary, both of Chicago, November 1.

Deaths

William W. Richmond ⊕ Clinton, Ky.; University of Louisville (Ky.) Medical Department, 1874; since 1902 councilor and in 1903 president of the Kentucky State Medical Association; elected delegate from the Kentucky State Medical Association to the American Medical Association continuously since the organization of the House of Delegates; he served in the meetings of the House in 1907, 1908, 1909, 1910, 1911 and 1912, and was a member of important committees of the House of Delegates; member of the state board of health since 1912; for many years county health officer; aged 77; died, December 13.

John McPherson Scott ⊕ Hagerstown, Md.; University of Pennsylvania School of Medicine, Philadelphia, 1873; member and since 1894 secretary of the state board of medical examiners; past president of the Medical and Chirurgical Faculty of Maryland; at one time county health officer; aged 73; died, December 13, of heart disease.

George Frederick Edenharter ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1886; member of the American Psychiatric Association; aged 66; for two years superintendent of City Hospital and for thirty years superintendent of the Central Indiana Hospital for the Insane, where he died, December 6, of cerebral hemorrhage.

Charles Arthur Sinsel ⊕ Grafton, W. Va.; University of Maryland School of Medicine, 1888; former president of the state senate, and member of House of Delegates; at one time member and president of the school board; aged 59; died, December 8, of heart disease.

Thomas Duke Parke ⊕ Birmingham, Ala.; Louisville (Ky.) Medical College, 1877; Medical Department of the University of the City of New York, 1879; on the staff of the Children's Hospital; aged 65; died, December 4, of cerebral hemorrhage.

Wilmer Christian, Indianapolis; Medical College of Indiana, Indianapolis, 1896; formerly police surgeon; aged 52; died, December 6, of injuries received when the automobile in which he was driving was struck by a train.

Thomas W. Jeffs, Vancouver, B. C., Canada; University of Toronto (Ont.) Faculty of Medicine, 1895; coroner of Vancouver; aged 66; died, October 6, at the Vancouver General Hospital, following an operation.

James Asabel King, Manistee, Mich.; University of Michigan Medical School, Ann Arbor, 1884; member of the Michigan State Medical Society; at one time mayor of Manistee; aged 65; died, December 6.

Edgar Waples Robertson ⊕ Onancock, Va.; University of Maryland School of Medicine, Baltimore, 1866; past president of the Accomack County Medical Society; aged 78; died, December 11, of senility.

Robert W. Mifflin, Baltimore; Hahnemann Medical College of Philadelphia, 1876; formerly professor of the practice of medicine at the Atlantic Medical College, Baltimore; aged 69; died, November 28.

Marion Robert Smith, McGraw, N. Y.; Albany (N. Y.) Medical College, 1889; for nine years county coroner; at one time health officer of Cortlandville; aged 68; died, November 6, of heart disease.

John Madison McBee, Memphis, Tenn.; Jefferson Medical College of Philadelphia, 1897; formerly member of the Arkansas state legislature; aged 54; died suddenly, December 9, of heart disease.

William Harvey Hartzell ⊕ Allentown, Pa.; Jefferson Medical College of Philadelphia, 1873; past president of the Medical Society of the State of Pennsylvania; aged 72; died, December 6.

Thomas Leslie Macdonald, Washington, D. C.; Hahnemann Medical College and Hospital of Philadelphia, 1888; on the staff of the National Homeopathic Hospital; died, December 8.

Charles Leslie Kyner ⊕ Detroit; University of Michigan Medical School, Ann Arbor, 1914; aged 41; died, December 9, in Dearborn, of injuries received in an automobile accident.

James Thomas King, Quitman, Ga.; Georgetown University School of Medicine, Washington, D. C., 1894; aged 57; died, December 6, in a hospital at Atlanta, following a long illness.

Henry C. Vaughan, Shelbina, Mo.; Missouri Medical College, St. Louis, 1880; member of the Missouri State Medical Association; aged 73; died, December 8, of senility.

Edward Doolittle Fitch, Philadelphia; New York Homeopathic Medical College and Hospital, New York, 1887; aged 62; died, December 9, following a long illness.

Charles Edward McMillan, Inverness, Nova Scotia; Dalhousie University Faculty of Medicine, Halifax, 1899; member of the province legislature; died, October 26.

Cornelius G. Schwalbach, Juneau, Wis.; Milwaukee (Wis.) Medical College, 1897; member of the State Medical Society of Wisconsin; aged 49; died, December 8.

Ladislaus Pawlicki, San Francisco; University of St. Vladimira, Kief, Russia, 1855; aged 92; died, December 10, at the Mary's Help Hospital, of senility.

Samuel B. Lyon ⊕ Los Angeles; College of Physicians and Surgeons, Chicago, 1894; member of the Illinois State Medical Society; aged 64; died in November.

Lem Hall Winborn ⊕ Tuttle, Okla.; Louisville and Hospital Medical College, Louisville, Ky., 1908; aged 50; died, December 1, of cerebral hemorrhage.

William Rumbaugh Paules, Danville, Pa.; Jefferson Medical College of Philadelphia, 1890; aged 60; died suddenly, in November, of heart disease.

Orville Snell Haverfield, Hardin, Mont.; St. Louis College of Physicians and Surgeons, St. Louis, 1911; aged 36; died, December 7, of pneumonia.

Joseph Edward Caldwell, Glendale, Calf.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1881; aged 68; died, October 2.

James E. Stevens, Seattle; Physio-Medical College of Indiana, Indianapolis, 1887; aged 59; died, November 17, at the Seattle General Hospital.

John Bernard McMahon ⊕ New York; Medical Department of Columbia College, New York, 1879; aged 67; died, December 11, of pneumonia.

Charles E. Thurmon, Milton, Ill.; Missouri Medical College, St. Louis, 1885; formerly a druggist; aged 70; died, November 28, of heart disease.

Wilson Small, Brooklyn; Medical Department of the University of the City of New York, 1889; aged 76; died, December 6, of pneumonia.

Charles Henry Morris, Middle Musquodoboit, Nova Scotia; Medical School of Harvard University, Boston, 1868; aged 78; died, October 9.

Irving Charles Foster, Oakland, Calif.; College of Physicians and Surgeons, Chicago, 1884; aged 60; was found dead in bed, December 6.

Alexander May Redfern, Charlotte, N. C.; Long Island College Hospital, Brooklyn, 1886; aged 61; died, December 4, of heart disease.

Joseph R. Taylor, St. Joseph, Mo.; Hahnemann Medical College and Hospital, Chicago, 1868; aged 80; died, December 6, of senility.

Theodore Foote, Wildwood Crest, N. J.; New York Homeopathic Medical College, 1874; aged 74; died, December 11, of appendicitis.

James W. Curless, Ursa, Ill.; Louisville (Ky.) Medical College, 1881; aged 73; died, December 3, of senility.

Wood Deering Hill, Choteau, Okla.; Barnes Medical College, St. Louis, 1897; aged 48; died, December 1.

Norman L. Kean, Minneapolis; Chicago Medical College, 1871; aged 77; died, December 4, of senility.

William J. Mathews ⊕ Elberton, Ga.; Atlanta Medical College, 1891; aged 54; died, December 4.

Correspondence

MEDICAL AID IN HASTE

To the Editor:—The latest arrival in the matter of automobile plates, the function of which is to notify traffic officers and others that the driver, or owner, is a medical man—presumably, has just been seen in Boston. It is circular, and a little larger than the caduceus. The upper circle shows the words, OSTEOPATHIC PHYSICIAN; the lower circle, the words, RIGHT OF WAY. In addition, a foot or so lower, rests the now so much abused green cross. In due time, presumably, will arrive distinctive plates for the chiropractor, the Christian science healer, and the rest of the group.

JAMES BROWN THORNTON, Boston.

"EXCISION OF A V-SHAPED PIECE OF THE LOWER LIP VERSUS ROENTGEN-RAY OR RADIUM TREATMENT"

To the Editor:—The communication appearing in THE JOURNAL, November 24, by Dr. J. C. Bloodgood, with this title is of more than ordinary interest. Dr. Bloodgood divides his cases of lower lip lesions into five classes. For brevity's sake permit me to divide them into three:

1. Lesions primarily and continuously benign.
2. Borderline lesions.
3. Lesions primarily and continuously malignant.

It is, of course, recognized that time and conditions may, in a certain proportion of individuals, transform Class 2 into Class 3.

Dr. Bloodgood cites one specific instance in which a patient presented a submental metastatic node following successful healing of the primary lesion on the lower lip by radium seven months previously. He makes no mention of such a possibility after a surgical removal, but broadly states that the proper treatment in such cases is a sectional removal by the V-shaped incision, and then makes the astonishing assertion that there never has been a local recurrence after such surgical procedure.

In our little clinic in Los Angeles we have seen and treated by irradiation during the last twenty years in the neighborhood of 300 straight recurrences in lesions of the lower lip, in every one of which the classical V-shaped incision has been employed, and in a number, the block dissection of glands had been carefully carried out by excellent surgeons. Some of these recurrent conditions were in or around the line of the incision, but a great number had extended and become metastasized into the contiguous glandular channels. A very creditable number of these patients have remained well over periods ranging from one to ten years, notwithstanding the fact that some had postoperative recurrences as many as three or four times before being submitted to irradiation.

Now as to the classification.

All patients in Class 1 are permanently relieved under treatment, as outlined by Dr. Bloodgood.

Class 2 ditto, except that leukoplakia does not disappear with the discontinuance of the use of tobacco and the removal of local irritants.

In patients in Class 3, the primary lesion may be permanently relieved by any agency that destroys it in toto. Irradiation is the elective agency, but in many cases this may be advantageously combined with surgery, electrocoagulation or cauterization, according to the size, extent or type of lesion. Into this class falls a certain percentage of unfortunates who fail to respond favorably to any treatment within present human knowledge.

In a personal experience with a total of more than 2,000 cases of serious lesions of the lower lip, I am firmly convinced that the best medical science can offer a patient with a cancer of the lower lip today is immediately and thoroughly to irradiate all gland-bearing areas tributary to the lip, and then attack the primary lesion as outlined above.

There is ample evidence in present-day medical literature to substantiate these remarks.

ALBERT SOILAND, M.D., Los Angeles.

[NOTE.—The letter of Dr. Soiland was referred to Dr. Bloodgood for comment. He replies:]

To the Editor:—Dr. Soiland questions the statement of facts which appear in my communication.

For those interested in this investigation it seems wise to repeat my statement, which was somewhat as follows: In the records of the Surgical Pathological Laboratory of the Johns Hopkins Hospital, among the primary lesions of the lower lip, whether benign or malignant, there never has been a local recurrence when the lesion has been removed by Dr. Halsted or one of his group, and the wound closed without plastic surgery.

In the first place, this statement and all the other statements of fact in my communication to THE JOURNAL were previously made in my first communication some years ago in *Surgery, Gynecology and Obstetrics.* I mentioned this in my communication.

The point that I wished to emphasize was, that the cure of cancer of the lip, as of cancer anywhere else, depends on the earliest intervention and the proper intervention. If all patients present themselves within a few days or weeks because of an unhealed lesion of the lower lip, it is practically impossible to make the differential diagnosis between the benign and the malignant in all cases—the earlier and the smaller the lesion, the larger the proportion in which this diagnosis cannot be made. Therefore, the complete excision allows a microscopic study, and if the lesion proves to be cancer, allows the immediate treatment of the lymphatic area by complete removal with or without irradiation before or after operation.

Let us grant that irradiation will cure the local lesion even when it is malignant. I contend that the complete excision of a V-shaped piece under procain is more efficient than any other treatment in requiring less time of the patient and surgeon and less cost in material with an equally good cosmetic result; but—more important than this—it allows the immediate differential diagnosis between the benign and the malignant. When these early primary lesions of the lower lip are treated by irradiation, either one must also irradiate in every case the glandular area, which is unnecessary if the primary lesion is benign, or one must wait until the glands become palpable, when treatment, no matter which, will not yield the same results as the earlier treatment indicated by the microscopic study of the excised lesion.

We have no evidence today that irradiation alone can compete with the early complete removal of the involved glands in the neck associated with cancer of the lower lip.

It is important to remember that I was not discussing the treatment of *late* cancer of the lower lip, or *recurrent* cancer. That is a chapter by itself and a group in which surgery does not offer much. But what offers most in my opinion is not yet settled. I do not blame Dr. Soiland or any one else for being astonished at my statement as to the results in the treatment of early cases. I am rather of the opinion that members of the medical profession in localities where there has not been much education are not familiar with the picture of early cancer.

Dr. Soiland, in his letter, mentions 300 straight recurrences in lesions of the lower lip, in every one of which the classical V incision has been employed. In my experience this means one of two things or both—late cancer or bad surgery.

The object of my communication to The Journal is to call attention to the paper which will soon be published, and to demonstrate the splendid results of the educational efforts which has allowed early intervention, and to try, by my evidence, to convince my colleagues in this country that the first early intervention in a lesion of the lower lip is complete excision of a V-shaped piece under procain and the microscopic study; should the lesion prove to be malignant, the immediate removal of the submental and submaxillary areas, again under local anesthesia and with the electric cautery. When cancer is found in the glands, postoperative irradiation can be given. At present my figures offer but 50 per cent. cures with surgery alone. The time is too short and the number of cases too small to estimate as yet whether postoperative irradiation increases the probability of cure.

Joseph Colt Bloodgood, M.D., Baltimore.

NEED OF REPRINTS AT HONGKONG UNIVERSITY SCHOOL OF MEDICINE

To the Editor:—The Hongkong University School of Medicine has recently been reorganized with the addition of several professors called from England. These men find themselves considerably handicapped in regard to medical literature, and have asked for assistance in securing important reprints covering work in the United States. May I call this need to the attention of the medical profession of this country? The heads of departments are: Dr. J. L. Shellshear, anatomy; Dr. K. H. Digby, surgery; Dr. J. S. Anderson, medicine; Dr. H. G. Earle, physiology; Dr. C. W. Wang, pathology. They can be addressed at University of Hongkong, Hongkong.

Richard C. Pearce, M.D., New York.
Director, Division of Medical Education,
the Rockefeller Foundation.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT FOR COMEDONES AND FOR MILIA

To the Editor:—Please give a method of treatment for blackheads and whiteheads. ———, M.D., Idaho.

Answer.—Blackheads, or comedones, are collections of sebaceous or oily matter retained in the openings of the sebaceous glands. They are generally associated with acne or pimples. A good plan of treatment is to wash the face thoroughly every night with soap and water and then apply a lotion consisting of precipitated sulphur, 8 gm.; pulverized camphor, 4 gm.; salicylic acid, 0.66 gm., and lime water, sufficient to make 120 gm. The diet should be regulated, and candy, pastry and rich and greasy foods avoided. Careful attention to the bowels is also important.

Whiteheads, or milia, are not often numerous, and generally the only treatment needed is to shell them out with a sterile needle. In case they show a tendency to recur, the needle point may be dipped into a 50 per cent. solution of chromic acid and inserted into the minute opening.

CARE OF THE SCALP

To the Editor:—What, if anything, will stimulate the growth of the hair, and prevent its falling out in a normal adult of 28.

———, M.D., New York.

Answer.—If the scalp is oily, it should be shampooed every week with a good soap. If it is not oily, once every two or three weeks is often enough. After the scalp has been washed, an ointment containing 1 dram of precipitated sulphur to the ounce of hydrous wool fat or petrolatum should be applied. Several good formulas of lotions for use on the scalp every night or three times a week may be found in the textbooks on dermatology or in the Handbook of Therapy.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

Colorado: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Indiana: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

National Board of Medical Examiners: Written Examinations in Class A Medical Schools. Part I, February 13-15, 1924. Secretary, J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for *this examination must be made on or before January 15, 1924.*

New York: Albany, Buffalo, New York and Syracuse, January 28-31. Assistant, Mr. Herbert J. Hamilton, State Education Building, Albany.

North Dakota: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oregon: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

Pennsylvania: Philadelphia, January 29–February 2. Sec., J. George Becht, M.D., State Capitol, Harrisburg.

South Dakota: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

Vermont: Burlington, February 12. Sec., Dr. W. Scott Nay, Underhill.

Washington: Olympia, January 8. Sec., Mr. William Melville, Olympia.

Wisconsin: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Nevada May Examination

Dr. Simeon L. Lee, secretary, Nevada Board of Medical Examiners, reports the written examination held at Carson City, May 7-9, 1923. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 4 passed and 2 failed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago Hospital College of Medicine	(1918)	93.2
Mississippi Medical College	(1911)	75.1
Kansas City College of Medicine and Surgery	(1919)	89.3
Okayama Special Medical School, Japan	(1920)*	78.5

College FAILED	Year Grad.	Per Cent.
Kumamota Special Medical School, Japan	(1919)*	66.7
Osaka Prefecture Higher Medical School, Japan	(1914)*	45.9

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco	(1918)	California
Hahnemann Med. Coll. of the Pacific, San Francisco	(1917)	California
Drake University College of Medicine	(1898)	Iowa
Harvard University	(1920)	Wisconsin
Detroit College of Medicine	(1903)	Michigan
Kansas City College of Medicine and Surgery	(1922, 2)	Arkansas
St. Louis College of Physicians and Surgeons	(1908)	Illinois
University of Pennsylvania	(1921)	Utah

* *Graduation not verified.*

Alabama July Examination

Dr. Samuel W. Welch, chairman, Alabama Board of Medical Examiners, reports the written examination, held in Montgomery, July 10-14, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 26 passed and 3 failed, including 1 chiropractor. Five candidates were licensed by reciprocity. One candidate was licensed by endorsement. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Emory University	(1922) (1923, 5)	82.7, 77.5, 86.8, 87.9, 89.7, 91.1
Tulane University	(1922, 2) (1923, 9)	83.1, 86, 84.2, 84.3, 84.8, 86.5, 86.9, 87.1, 88.3, 89.2, 39.2
Harvard University	(1922)	86.8
University of Pennsylvania	(1922)	89.9
Meharry Medical College	(1923)	79.1
University of Tennessee	(1923, 2)	83.1, 89.1
Vanderbilt University	(1923, 3)	82.3, 89.5, 90.2
University of Griefswald, Germany	(1921)*	79.4

College FAILED	Year Grad.	Per Cent.
University of Arkansas	(1918)	67.8
Chattanooga Medical College	(1909)	31.5
Chiropractor	......	......

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1893)	Dist. Colum.
Rush Medical College	(1889)	Wisconsin
Tulane University	(1919)	Mississippi
Lincoln Memorial University Medical Department	(1902)	Tennessee
Chattanooga Medical College	(1908)	Tennessee

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement with
Johns Hopkins University	(1915)	U.S.P.H.S.

* Graduation not verified.

Nebraska June Examination

Dr. J. D. Case, superintendent of the Nebraska Department of Public Welfare, reports the written examination held at Lincoln, June 6-8, 1923. The examination covered 9 subjects and included 90 questions. An average of 70 per cent. was required to pass. Ninety-four candidates were examined, all of whom passed, including 6 osteopaths. Eleven candidates were licensed by reciprocity, and one candidate was licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Harvard University	(1922)	87
Washington University Medical School, St. Louis	(1922)	85
Creighton Medical College	(1923, 34)	80, 81, 81, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 88
University of Nebraska College of Medicine	(1922)	80, (1923, 4)* 84, 85, 87, 87, (1923, 47) 81, 82, 82, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 8-, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 88, 90, 91
Osteopaths		85, 88, 88, 89, 91, 91

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1919)	Illinois
Loyola University	(1921) (1922)	Illinois
Northwestern University School of Medicine	(1896)	Wyoming
	(1922)	Illinois
Rush Medical College	(1919)	Illinois
University of Maryland	(1919)	Maryland
Harvard University	(1922)	Ohio
Ensworth Medical College	(1902)	Missouri
University of Cincinnati	(1920)	Ohio
Hahnemann Medical Coll. and Hosp. of Philadelphia	(1920)	Penna.

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Hospital College of Medicine, Louisville	(1883)	U. S. Army

* These candidates have completed their medical course, and will receive their M.D. degree on completion of one year's internship in a hospital.

Oklahoma July Examination

Dr. J. M. Byrum, secretary, Oklahoma Board of Medical Examiners, reports the written examination held in Oklahoma City, July 10-11, 1923. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 24 candidates examined 21 passed and 3 failed. Twenty candidates were licensed by reciprocity. Two candidates were granted reregistration licenses. The following colleges were represented:

PASSED

College	Year Grad.	Number Licensed
Northwestern University Medical School	(1922) (1923)	2
University of Oklahoma	(1923)	16
Jefferson Medical College	(1923)	1
Meharry Medical College	(1923)	1
University of Tennessee	(1923)	1

FAILED

College	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons	(1921)	52
University of Oklahoma	(1923, 2)	72, 73

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Birmingham Medical College	(1910)	Alabama
University of Arkansas	(1904) (1906) (1909)	Arkansas
Chicago College of Medicine and Surgery	(1915)	Illinois
Northwestern University Medical School	(1921)	Tennessee
Keokuk Medical College of Physicians and Surgeons	(1902)	Nebraska
Kansas City Medical College	(1887)	Missouri
Missouri Medical College	(1882)	Missouri
University Medical College of Kansas City	(1911)	Missouri
Washington University Medical School	(1904, 2)	Arkansas, Missouri
Creighton Medical College	(1923)	Nebraska
University of Nebraska	(1920)	Nebraska
Eclectic Medical Institute, Cincinnati	(1894)	Missouri
Chattanooga National Medical College	(1901)	Tennessee
Meharry Medical College	(1908)	Georgia
University of Tennessee	(1920)	Tennessee
Vanderbilt University	(1915) Tennessee, (1916)	Kentucky

Book Notices

Obstetrics for Nurses. By Charles B. Reed, M.D., Obstetrician to Wesley Memorial Hospital, Chicago. Cloth. Price, $3. Pp. 399, with 144 illustrations. St. Louis: C. V. Mosby Company, 1923.

Six years have elapsed since the appearance of the first edition of this work; during this period new observations in obstetrics, as well as the exhausting of the first edition, have made necessary a new printing. Dr. Reed writes in a simple, direct manner, and has selected with care those facts which can be comprehended by and be of service to the nurse. On such matters as the Abderhalden test or the predetermination of sex, he gives information which will enable the nurse to answer questions, without confusing her with theoretical discussion. Dr. Reed has long been known as an exponent of painless obstetrics, and he devotes a considerable amount of space to analgesic methods. Unfortunately, some of the illustrations in this book are taken from older works, so that the physician is shown in one picture conducting labor without gloves. The author also tends to encourage early rising after labor, although he makes no recommendation as to any routine time: for instance, he says "In general, the woman should not get up until the uterus has gone down into the pelvis and is not palpable. If this is the case on the fifth day, and she feels strong, she may get up." It is questionable whether it is worth while to insert in a textbook for nurses such an extensive therapeutic index as that included in this volume. Some of the drug preparations included, such as cerium oxalate, are not usually included in any list of useful drugs. Other preparations are proprietary combinations which are not generally approved. In any future revision, this list might be greatly abbreviated, if not completely eliminated. On the whole, the book is one of the most satisfactory available for use in the teaching of nurses.

Chirurgie Vasculaire Conservatrice. Technique — Indications Opératoires et Résultats. Par P. Moure, Chirurgien des Hôpitaux de Paris. Préface de Ch. Lenormant. Paper. Price, 12 francs, net. Pp. 179, with 110 illustrations. Paris: Masson et Cie, 1923.

This consists of a brief manual devoted chiefly to the technic of blood vessel suture. The greater part of the book is given to the application of the various types of arterial and venous suture to the practical problems of aneurysm and injuries. There are numerous line and wash drawings.

Ophthalmic Surgery. A Handbook of the Surgical Operations on the Eyeball and Its Appendages as Practised at the I. Eye Clinic, University of Vienna. By Dr. Josef Meller, Clinical Professor of Ophthalmology, I. Eye Clinic, University of Vienna. Edited by D. William M. Sweet, Clinical Professor of Ophthalmology, Jefferson Medical College. Third edition. Cloth. Price, $5 net. Pp. 365, with 225 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

This is a translation of the second edition of Meller's work; it contains a description of the operations on the eye and its adnexa as performed at the University of Vienna by Meller and his associates. It is not an encyclopedia of ophthalmic surgery, but rather presents the operations that have become the practice in that clinic. The description of each operation is simple but clear. The illustrations are numerous but well done, and amplify the text. In the preface, Meller outlines his method of instruction, which consists in demonstrating and explaining technic and then analyzing mistakes made by the students. This edition is dedicated to the Rockefeller Foundation.

Traité d'Ophthalmologie. Par Poulard. Tome I, et II. Cloth. Price, 120 francs. Pp. 1457, with 713 illustrations. Paris: Masson et Cie, 1923.

This rather unusual textbook is based more on the experiences of the author than on the standard technic of authorship, and in consequence provides refreshing reading. To the cognoscenti, the continued misspelling of proper names, particularly those of Teutonic extraction, is a jarring note in otherwise good proofreading. The illustrations are of three main types: excellent semidiagrammatic illustrations of operative procedures; photographs of cases, sufficiently retouched and printed clear enough to show the requisite details; and rather indifferent photomicrographs of histopathology. The text material follows the usual classification of ophthalmic textbooks so closely that comment is unnecessary. There is one striking and, at the same time, to the American ophthalmologist, sad feature in the emphasis that is laid on the importance of syphilis in considering the etiology of ocular disease; certain it is that in this country, the spirochete plays no such leading part. Again, the excessive use of cocain as a palliative in many of the external and painful diseases of the eye, such as the author advocates, would lead us here into the clutches of the lynx-eyed argus of the Harrison law. Many of the chapters are excellently written; among such may be included those on roentgen-ray localization, plastic surgery about the eye, glaucoma, optic nerve disease, and refraction; but uniformity does not prevail. Witness, for example, the chapter on sympathetic ophthalmia, in which the Elschnig theory of anaphylaxis is not even mentioned. On the other hand, three full pages are devoted to the description and use of the Bailliard dynamometer for measuring the intra-ocular blood pressure, a procedure that so far is only of experimental value and by many is repudiated as inaccurate. The description of changes in the lens is hopelessly antiquated in the light of Vogt's publications; but the half of that chapter that is devoted to surgery of cataract is sound and well written. The chapter on muscles expresses the views that are prevalent in this country, but the darling of American ophthalmologists, heterophoria, is treated much like Cinderella before the advent of the fairy godmother. However, taken by and large, it is a good textbook, well printed and easily read, containing many personal experiences of the author, and full of hints of great practical value.

The Essentials of Chemical Physiology for the Use of Students. By W. D. Halliburton, M.D., LL.D., F.R.S., Professor of Physiology in King's College. Eleventh edition. Cloth. Price, $2.50. Pp. 343, with 71 illustrations. New York: Longmans, Green & Co., 1922.

This little book, of British origin, is intended to be a textbook for students in what is more commonly known in this country as physiologic chemistry; the author must have smiled when he explained that chemical physiology was the same as physiologic chemistry. The simple constituents of the body are described and their reactions are discussed in much the same manner as occurs in the usual physiologic chemistry textbook. The method of presentation is direct, and easier to follow than the works of some American authors. This may be accounted for, however, by the fact that Dr. Halliburton makes no effort to be comprehensive. In the discussion of the proteins, the so-called English classification is employed rather than the classification commonly used here. The latter portion of the book is devoted to the "advanced course." This includes details of the newer methods of blood analysis, discussion of colloids and colloidal solutions, and viscosity; also a few experiments on laboratory animals are presented. Altogether, this portion serves as an epitome of clinical chemistry. To teachers of physiologic chemistry, in particular, the book will be of considerable interest.

A Practical Handbook of Diseases of the Ear. By William Milligan, M.D., Aurist and Laryngologist to the Royal Infirmary, Manchester, and Wyatt Wingrave, M.D., Pathologist to the Central Throat and Ear Hospital, London. Cloth. Price, $3.50 net. Pp. 191, with 72 illustrations. New York: William Wood & Co., 1923.

This is intended for the use of undergraduate medical students, and is more appropriate for this purpose than are the more extensive treatises published on the ear. In one place where he devotes a dozen pages to descriptions of radical mastoid operations, the author seems to have forgotten that his book is written for the instruction of undergraduate students of medicine; that is, for men preparing for the practice of general medicine. Undergraduate students of medicine and general practitioners are not legitimately interested in operative work in special fields and, above all, in such highly technical work as is called for in diagnosing the indications for and in performing the radical mastoid operation. The chapters on examination and the diseases of the external ear, auricle and meatus are the most satisfactory ones, as they should be in this type of textbook. On page 41, the statement that diplacusis is encountered more frequently in middle ear affections is not correct. Diplacusis is generally accepted as a symptom of internal ear disease. The discussion of clinical problems in connection with the suppurative diseases of the ear is more satisfactory than is that of the nonsuppurative conditions, diseases of the labyrinth and otosclerosis. Why industrial nerve deafness and shell shock deafness are classed as functional disorders is not clear, since characteristic changes in the labyrinth have been demonstrated post mortem, and even produced experimentally by explosions and persisting high pitched whistles.

Fasting and Undernutrition. A Biological and Sociological Study of Inanition. By Sergius Morgulis, Professor of Biochemistry, University of Nebraska College of Medicine. Cloth. Price, $5. Pp. 407, with illustrations. New York: E. P. Dutton & Co., 1923.

This is an able and comprehensive review of the entire literature on the physiology of fasting by an author who has done considerable work in the field, especially in the physiology of inanition in lower animals. The author states that "in the preparation of the present volume two definite objectives have been sought: first, to collect and to classify what is known about inanition; secondly, to consider the facts in their proper biological setting." These objectives have been achieved with considerable success, although one might have wished that the author had made clearer distinctions between general principles and the mass of details in some parts of the book. The subject matter is treated under the general heads of hibernation and allied phenomena, metamorphosis, fasting in salmon, acute inanition, partial inanition, chronic inanition, intermittent inanition, and inanition and growth. An excellent bibliography arranged under these headings fills eighty-five pages. The book is also provided with an index of authors and a serviceable subject index. This book can be recommended to every internist who takes the matter of nutrition and restricted diets of his patients seriously.

A Treatise on the Diseases and Injuries of the Rectum, Anus and Pelvic Colon. By J. Rawson Pennington, M.D., F.A.C.S., Proctologist to Columbus Hospital. Cloth. Price, $12. Pp. 933, with 677 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

In this volume, Dr. Pennington has collected a vast amount of material on proctology. His introductory chapter is historical, and he has preceded each following chapter by a brief historical review of that particular aspect of the subject. The book aims at the practical, special emphasis being placed on the instruments and methods used. It is freely interspersed with case reports from the author's practice, and with numerous illustrations, the large majority of the latter borrowed from other publications. The style of writing is colloquial. It appears to have been the attempt to include everything, rather than to select carefully from the large amount of material available, simply those methods which the author could thoroughly recommend.

Outlines of Psychiatry. By William A. White, M.D. Ninth edition. Leather. Price, $4. Pp. 372, with illustrations. Washington: Nervous and Mental Disease Publishing Company, 1923.

In the preface to this popular work, Dr. White calls attention to additions that have been made along three lines: (1) newer methods in the treatment of general paralysis; (2) the pathology of dementia praecox, and (3) the classifications of the presenile, senile and arteriosclerotic psychoses. As might be expected, Professor White pays special attention to psychanalysis. One of the most valuable features of his book is the section on the principles and methods of examination.

A Clinical Guide to Bedside Examination. By Dr. H. Elias, Dozent and Assistant at the First Medical Clinic of the University of Vienna; Dr. N. Jagic, Extraordinary Professor and Chief Physician to the Sofienspital, Vienna, and Dr. A. Luger, Dozent and Assistant at the Second Medical Clinic of the University of Vienna. Translated by William A. Brams, M.D., Adjunct in Medicine, Michael Reese Hospital, Chicago. Cloth. Price, $1.50. Pp. 135. New York: Rebman Company, 1923.

This concise, little book on physical diagnosis may be recommended for use as a student's manual [illegible] medical schools, as well as to physicians w[illegible] ire t[illegible] up on this important discipline, usual[illegible] an unappreciated by the medical st[illegible]

Medicolegal

Construction of Law as to Practice of Podiatry

(Howerton v. District of Columbia (D. C.), 289 Fed. R. 628)

The Court of Appeals of the District of Columbia, in reversing a judgment of conviction of defendant Howerton of having practiced podiatry without having first passed the examination required by law, says that the act of Congress of May 23, 1918, makes it unlawful for any person, for compensation, to practice podiatry in the District of Columbia without first having passed such examination concerning his fitness as the health officer of the district may prescribe; but none of the provisions of this act shall apply to regular practicing physicians or surgeons. Podiatry (or chiropody) is defined by the act to be the surgical or mechanical treatment of any ailment of the human foot, except the amputation of the foot or any of the toes, and, also, except the use of an anesthetic other than a local one. This court is of the opinion that the act was not intended to interfere with the general practice of any recognized branch of medical science; nor that a general practitioner, in any established branch of medical science, shall be limited in the treatment of his patients to all parts of the body except the foot, which, except in cases of surgical ailments involving amputation, shall be reserved for the podiatrist. The defendant, an osteopath, after first treating a sprained foot by simple massage or manipulation with the bare hands, had used on one hand a small device to assist in the manipulation, the device consisting of a rubber nodule held in place in the palm of the hand by means of a leather band; but, if he was practicing podiatry, and not osteopathy, inasmuch as his practice had extended from 1909 he came within the clause of the act excepting from its provisions podiatrists who had been practicing podiatry in the District of Columbia for one year next preceding the approval of this act.

Death After Appendectomy Not Due to Prior Injury

(Upham's Case (Mass.), 139 N. E. R. 433)

The Supreme Judicial Court of Massachusetts, in reversing a decree that approved of an award of compensation to Mrs. Upham for the death of her husband, says that he fell from a stepladder, July 20, 1921, and received an injury to his back which arose out of and in the course of his employment. The injury caused or aggravated an arthritis of the spine, which totally incapacitated him. Feb. 4, 1922, he suffered from severe abdominal pains—diagnosed as appendicitis—and as a result of an operation performed therefor he died ten days later. There was an effort to prove that the injured man contracted the appendicitis by reason of indirect results following the injury and particularly causing constipation and general impairment of vitality, which, it was contended, were directly due to the injury; but there was evidence to support a finding that the theory advanced had not been sustained. However, there was another finding that the physician who had undertaken the treatment of the man had planned to put him into a plaster cast, and before that stage of the treatment had been reached the man had developed symptoms which the physician diagnosed as appendicitis. Then, in order that the course of treatment for the disability should not be interrupted and nullified by a further attack of appendicitis, together with the discomfort which would result and a possible necessity of an operation because of such recurrence, the physician performed the operation for appendicitis. The industrial accident board adopted the view that this testimony that the operation, being a part of the treatment of the man for the benefit of his condition which, in turn, was due to his injury, was so causally connected with the injury as to call for a finding and a ruling that the consequences following and attributable to the operation were for that reason attributable to the injury and that the injury was, therefore, a causal factor in bringing about the results as stated, and the widow's claim for compensation under the workmen's compensation act should be allowed. Still it was found that the appendicitis the operation for which resulted in death, had no relation to the injury. Therefore, it not only appeared that the injury was not the active, efficient and proximate cause of death, but it did not even cause conditions which resulted in the appendicitis. As the appendicitis had no connection between the injury and the death, it could not properly be found that death following the operation resulted from the injury. The appearance of appendicitis, necessitating an operation which resulted in death, constituted a new and intervening cause wholly independent of and without any relation to the injury. As there was no causal connection between the injury and the death the latter could not be found to have resulted from the former. The operation was an independent, intervening agency which broke the chain of causation.

Arbitrary Limitation of How Much Intoxicating Liquor May Be Prescribed

(Lambert v. Yellowley et al. (U. S.), 291 Fed. R. 640)

The United States District Court, Southern District of New York, in granting an injunction pendente lite, or pending litigation in this suit against Yellowley, acting federal prohibition director, and others, says that it has reached the conclusion that the limitations of the Volstead Act and its amendments, which make it lawful to prescribe but one pint of intoxicating liquor for the internal and medicinal use of a person whose known ailment, if it is properly to be treated, requires the administration of a greater quantity, are void.

Whether or not the use of liquor in the treatment of certain known ailments is a valuable therapeutic agent is a controversial subject, with which the court is not, at present, particularly concerned. For the purposes of the defendants' motion to dismiss, it is sufficient to accept the allegations of the complaint and to consider that Congress itself, in the very legislation under attack, has recognized that in certain cases liquor has a legitimate medicinal use, and has specified the circumstances under which it may be prescribed in given instances. The difficulty is that, having done so, Congress, without reference to the quantity of liquor actually required for the proper treatment of a particular ailment from which a patient may be suffering, and irrespective of the good faith, judgment and skill of the physician in attendance, proceeds to limit the amount to be prescribed to not more than a pint within a period of ten days.

If, as the complaint alleged, the administration to a patient of more than the statutory quantity of liquor is necessary for his relief from a certain known ailment, the inability of such patient to have his legitimate needs supplied means that he is subjected to a prohibition that certainly is not within the terms of the Eighteenth Amendment, and that, it easily may be imagined, might subject him to serious consequences, if not death itself. While the exercise of regulatory power in the interest of the public at large frequently brings about individual hardship, it is to be recalled that one of its chief objects is to preserve health—and is not to jeopardize and destroy it. For this reason, the court feels that persons are not to be deprived of the use, when required, of such medicines as are proper and necessary for their relief, unless authority for such deprivation has expressly been conferred.

Under the facts presented by the complaint, the danger that persons bent on a violation of the Volstead law may, through the medicinal use of liquor, be furnished with a means of procuring intoxicants for beverage purposes, is to be overcome through regulations. These may be of the most stringent character, but they must fall short of actual prohibition against the use of liquor to the extent demanded by the reasonable necessities of the proper treatment of known ailments. So far as the court is informed, the legislation complained of does not purport to be based on any finding as to the quantity of liquor that reasonably and properly may be required within a specified period for the treatment of disease. If otherwise, the court would be inclined to dismiss the bill; it being the court's impression that within reasonable limits the quantity to be prescribed may be regulated by Congress. But, accepting the complaint as made, the limitation now imposed seems to be arbitrary and without justification. Should the proof show the contrary to be the fact, the complainant of course cannot prevail.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

32: 647-810 (Nov.) 1923

*General Relation Between Susceptibility and Physiologic Condition. C. M. Child, Chicago.—p. 647.
*Gastric Ulcer and Achlorhydria. J. R. Bell, London, Eng.—p. 663.
*Dynamics of Ventricular Systole. I. Auricular Fibrillation. L. N. Katz and H. S. Feil, Cleveland.—p. 672.
Lamblia (Giardia) Infection Associated with Cholecystitis. Case Treated with Neo-Arsphenamin. J. L. Kantor, New York.—p. 693.
Basal and Nitrogenous Metabolism in Acute Leukemia During Roentgen-Ray Treatment. W. G. Lennox and J. H. Means, Boston.—p. 705.
*Melanuria Without Melanosarcoma. Report of Case. J. P. Peters, New Haven, Conn.—p. 709.
*Value of Electrocardiograph in Prognosis. W. A. Bloedorn and L. J. Roberts, Washington, D. C.—p. 718.
*Experimental Infectious Streptococcus Endocarditis and Its Arsenical Therapy (Sodium Cacodylate). J. A. Bargen, Chicago.—p. 727.
Complications of Staphylococcus Focal Infections. L. M. Morris, San Francisco.—p. 746.
*Biochemistry and Treatment of Chronic Nephrosis (Epstein). I. M. Rabinowitch and M. C. C. Childs, Montreal, Can.—p. 758.
*Blood Oxygen in Diabetes Mellitus. S. B. Grant, Boston.—p. 764.
*Gastric Secretion in Response to Duodenal Feeding. A. L. Garbat, New York.—p. 771.
Digitalis Elimination. H. Gold, New York.—p. 779.
*Effects of Insulin in Treatment of Diabetes Mellitus. I. M. Rabinowitch, Montreal, Can.—p. 796.

Relation Between Susceptibility and Physiologic Condition.—Evidence is presented by Child in support of the conclusion that the susceptibility to action of external agents of the living protoplasms of different individuals of a species and of different regions of the individual depends primarily on quantitative differences in the individuals or regions concerned, and that the rate of oxidative metabolism is in some degree a measure of these differences. The evidence indicates that susceptibility and capacity for acclimatization and recovery vary in general, directly with, though not necessarily proportionally to, the rate of oxidative metabolism.

Gastric Ulcer and Achlorhydria.—Twenty-seven proved cases of chronic gastric ulcer were examined by Bell by means of the fractional test meal. Four (14.8 per cent.) had complete achlorhydria and three (11.1 per cent.) had extremely low acidities. These four cases of gastric ulcer were clinically indistinguishable from those associated with normal acidities. Neither the site nor the duration of the ulcer appeared to predispose to achlorhydria. Bell asserts that the methods in vogue in medical treatment of gastric ulcer, while producing many good results, are not wholly rational, and are based on misconceptions. Recognition of the wide variations of secretory activity occurring in gastric and duodenal ulcer is essential for the efficient treatment of these conditions.

Dynamics of Ventricular Systole.—A study of optically recorded heart sounds and the subclavian pulse was made by Katz and Feil in a series of fifteen normal persons and in a series of fifteen persons with auricular fibrillation. A method is given for determining the duration of systole and its phases from these records. The authors conclude from their observations that in man, as in animals, the changes in the dynamics of ventricular systole occur primarily as a result of changes in two factors: the one physiologic, that is, the condition of the myocardium, and the other physical, that is, the tension and volume of the ventricle at the beginning of systole.

Melanuria Without Melanosarcoma.—In Peters' case there was no evidence during life or postmortem of any abnormal source of production of the pigment. The case is of interest because it indicates that melanuria can occur in the absence of melanotic sarcoma.

Value of Electrocardiography in Prognosis.—A case is reported by Bloedorn and Roberts in which electrocardiograms were obtained illustrating the presence of a prolonged Q R S complex, notching of the S-wave in Lead II and inversion of the T-wave in Leads I and II. A diagnosis of damaged myocardium was made and a bad prognosis given. Sudden death of the patient occurred within four months and postmortem examination of the heart revealed chronic interstitial myocarditis and marked coronary sclerosis, with occlusion of the decreasing branch of the left anterior coronary artery.

Sodium Cacodylate in Experimental Infectious Streptococcus Endocarditis.—Bargen's report suggests possibilities for the specific therapy of valvular endocarditis. While the results obtained with forty-eight rabbits do not establish conclusively the value of sodium cacodylate therapy with chronic infectious endocarditis, yet they afford reasons for believing that it is of some value. In 84 per cent. of a group of patients in whom a chronic infectious endocarditis was suspected, *Streptococcus viridans* was recovered by blood culture. Bargen points out that the essential needs for the isolation of *Streptococcus viridans* from the blood of patients during life seem to be anaerobic conditions, mediums rich in nutrient substances (liquid or solid), careful daily examinations of all mediums used for at least a week, and the withdrawal of a large quantity of blood (from 30 to 40 c.c.) at the proper time. Sodium cacodylate seems to have some beneficial influence on the healing of heart valve infections. Arsenical preparations, such as sodium cacodylate, may have a protective power for the endocardium or the pericardium.

Treatment of Chronic Nephrosis.—A case of chronic nephritis associated with chronic nephrosis is recorded by Rabinowitch and Childs. The usual treatment of chronic nephritis, including restriction of salt, water and nitrogen, caused improvement to a certain stage, which became stabilized; the edema still persisted. Following the institution of a high protein diet there was no evidence of a further increase in the nonprotein nitrogenous elements in the blood and no clinical symptoms suggestive of any harmful effects. The end-result was a marked improvement in the clinical picture, with a complete disappearance of the edema. Improvement was also shown by the chemical state of the blood and renal functional tests.

Blood Oxygen in Diabetes Mellitus.—The average venous oxygen unsaturation of thirty-four diabetic patients was found by Grant to be 59 per cent. greater than the average normal. This increase in the venous oxygen unsaturation would seem to indicate a slow blood flow through the arm in diabetic patients.

Gastric Secretion in Response to Duodenal Feeding.—It is evident from Garbat's observations that one cannot put the stomach at rest from secretion by duodenal alimentation alone. There seems to be a definite cycle of gastric secretion which starts just as soon as food enters the duodenum, and which depends on the type of patient we are dealing with. The greater the response of the secretory mechanism of the stomach to food intake by mouth, as in some cases of achylia, the less gastric secretion in response to duodenal alimentation. The exact physiologic mechanism whereby this reflex is brought about is still to be determined.

Effects of Insulin in Diabetes.—The experience Rabinowitch has had demonstrates that the reaction of a series of patients with diabetes to insulin is not uniform. Its chief value, in the present status of our knowledge of its action, seems to lie in tiding over the diabetic during the critical stage of the disease (precoma), so difficult to control with the usual procedures: fasting, intravenous injections of salines, etc. In emaciated patients with severe diabetes, in whom protein plays a great part in the formation of energy, and who progress best when controlled by a diet on the Woodyatt basis, with the administration of insulin the diet may be increased to the point where the patient gains weight and generally shows clinical improvement. Diet still remains the important means of controlling the disease. The ultimate type of treatment to follow, whether diet alone or diet plus insulin, seems to depend on whether the pancreatic function is completely destroyed as in pancreatic diabetes, or whether the little remnant is only temporarily overstrained, but can recover with rest. The first case recorded here seems to be of the latter type.

Archives of Surgery, Chicago

7: 469-688 (Nov.) 1923

*Clinical and Pathologic Study of Ten Bone Tumors. J. J. Morton and W. C. Duffy, New Haven, Conn.—p. 469.
Five Cases of Paget's Deforming Osteomyelitis. L. W. Ely, San Francisco.—p. 532.
*Fundamental Factor in Recurrence of Inguinal Hernia. M. G. Seelig and K. S. Chouke, St. Louis.—p. 553.
*Experimental Cord Crushes. Mechanical Factors Involved; Consequent Changes in Cord. J. F. McVeigh, Galveston, Tex.—p. 573.
Prognosis and Treatment of Fractures of Leg and Ankle. A. P. C. Ashhurst and E. T. Crossan, Philadelphia.—p. 601.
Treatment of Fractures by Orthopedic Methods. I. J. Landsman and S. W. Boorstein, New York.—p. 633.
*Suppurative Tenosynovitis of Flexor Muscles of Hand. M. Cleveland, New York.—p. 661.

Study of Bone Tumors.—Neither the use of the roentgen ray, examination of a microscopic section, nor the clinical behavior should, according to Morton and Duffy, be relied on of themselves in the diagnosis of bone tumor. However, the clinical behavior, in general, is a most valuable index. In many cases the only true test is that of time. The authors commend highly the collection and study of a group of these neoplasms, such as is planned by the Registry for Bone Sarcoma, and offer suggestions for greater benefit to the surgeon.

Factor in Recurrence of Inguinal Hernia.—Seelig and Chouke consider suturing the abdominal muscles to Poupart's ligament, in hope of buttressing a weak or ruptured abdominal wall, a hopeless procedure. These muscles will not unite with the fascial ligaments unless they have been deliberately and rather extensively traumatized, and even if they did unite, the union would not be permanent on account of the inevitable tension that occurs when these structures are approximated. The authors do not believe that even the conjoined tendon often unites with Poupart's ligament when these two structures are sutured. These structures are both connective tissue, but in addition to the inevitable tension, which pulls against the suture line, there is always present the possibility of the lateral and medial origins of the cremasteric muscle interposing themselves between Poupart's ligament and the conjoined tendon, thus rendering union highly improbable. The authors' experiments showed that when a pedicled flap of fascia lata was made; the underlying muscle was tunneled with a knife, and the fascial strip was laid in the raw muscle tunnel and sutured in situ, without tension, wherever the fascial strip came into contact with intramuscular connective tissue (perimysium), it fused with it, and became firmly anchored. Wherever the perimysial tissue was scanty, the fascial strip lay in its tunnel, with practically no evidences of union to the muscle about it.

Experimental Cord Crushes.—Keiller has contended, from his study of the spinal cords of patients who have died as a result of fracture of the spine, that, since the spinal cord is encased within a fairly firm but apparently slightly elastic tube of pia mater, the cord pulp formed at the site of the lesion in crushes resulting in ribbon-like injuries takes the path of least resistance and tracks up and down the cord pushing aside and destroying cord elements. It was with this theory in mind that experiments were made on dogs, and human cords obtained fresh at necropsy were examined, the purpose being to study the mechanical factors involved in spinal cord crushes both complete and partial, and the subsequent vital changes occurring in such injuries. McVeigh reports the findings in detail. The original article should be consulted, as it does not readily lend itself to abstracting.

Treatment of Suppurative Tenosynovitis of Hand.—Cleveland asserts that to attain optimum results in suppurative tenosynovitis the desiderata are: (*a*) early diagnosis and immediate operation; (*b*) properly placed, adequate incisions, draining all collections of pus; (*c*) avoidance of unnecessary trauma; (*d*) early removal of drains; (*e*) early and continued active motion, and (*f*) prevention of secondary contamination of the infected sheath.

Iowa State Medical Society Journal, Des Moines

S: 441-490 (Nov. 15) 1923

Diagnosis of Some Surgical Conditions. M. L. Harris, Chicago.—p. 441.
Extraperitoneal Cesarean Section. N. Schilling, New Hampton.—p. 445.
Care of Patients Before, During and After Confinement. J. P. Greenhill, Chicago.—p. 456.
Prostatectomy in Poor Surgical Risks. R. J. E. Oden, Chicago.—p. 460.
Narcotic Drug Addiction and Narcotic Laws. E. S. Bishop, New York.—p. 463.
Early Physicians in Iowa. D. S. Fairchild, Clinton.—p. 472.

Journal of General Physiology, Baltimore

6: 131-237 (Nov. 20) 1923

Differentiation of Oxyhemoglobins by Means of Mutual Solubility Tests. K. Landsteiner and M. Heidelberger, New York.—p. 131.
Influence of Light of Very Low Intensity on Phototropic Reactions of Animals. H. K. Hartline, Easton, Pa.—p. 137.
Transport of Carbon Dioxid in Blood of Some Marine Invertebrates. T. R. Parsons and W. Parsons, Naples, Italy.—p. 153.
Toleration of Temperature by Drosophila. H. H. Plough and M. B. Strauss, Amherst, Mass.—p. 167.
Electrophoresis of Bacteria as Influenced by Hydrogen Ion Concentration and Presence of Sodium and Calcium Salts. C. E. A. Winslow, I. S. Falk and M. F. Caulfield, New Haven, Conn.—p. 177.
Conductivity Titration of Gelatin Solutions with Acids. D. I. Hitchcock, New York.—p. 201.
Theory of Regeneration Based on Mass Action. II. J. Loeb, New York.—p. 207.
Influence of Chemical Nature of Solid Particles on Their Cataphoretic P.D. in Aqueous Solutions. J. Loeb, New York.—p. 215.

Kentucky Medical Journal, Bowling Green

21: 585-668 (Nov.) 1923

Intestinal Infarction from Influenza Infection. Case Report. J. G. Sherrill, Louisville.—p. 642.
Subconjunctival Dislocation of Crystalline Lens. Report of Three Cases. T. L. Bailey, Madisonville.—p. 644.
Treatment of Trifacial Neuralgia by Alcohol Injections. L. W. Frank, Louisville.—p. 646.
Initial Bladder Symptoms in Tabes Dorsalis. C. W. Dowden, Louisville.—p. 649.
Roentgen-Ray as Therapeutic Agent in Dermatology. W. J. Young, Louisville.—p. 651.
Bronchial Asthma. W. Z. Jackson, Arlington.—p. 660.
Sinus Thrombosis Complicating Mastoiditis. Case Report. J. J. Wynn, Louisville.—p. 662.
Renal Calculus. Case Report. J. G. Sherrill, Louisville.—p. 664.

Minnesota Medicine, Minneapolis

6: 569-610 (Oct.) 1923

Surgery in Past Generation. A. W. Abbott, Minneapolis.—p. 569.
Tuberculous Enterocolitis. W. S. Lemon, Rochester.—p. 572.
New System of Feeding. T. L. Birnberg, St. Paul.—p. 579.
Encephalitis Simulating Acute Abdominal Conditions. R. E. Farr, Minneapolis.—p. 585.
*Lethargic Encephalitis. Injection of Sodium Iodid. C. E. Riggs, St. Paul.—p. 588.
Epidemic Encephalitis. L. M. Crafts, Minneapolis.—p. 595.
Case of Acute Intestinal Obstruction Caused by Volvulus in Hernial Sac. W. H. Magie, Duluth.—p. 599.

Sodium Iodid in Parkinson's Disease.—Riggs reports a rather remarkable effect from the intravenous injection of sodium iodid on the Parkinson syndrome and the headache in one case.

Southern Medical Journal, Birmingham, Ala.

16: 825-914 (Nov.) 1923

*Digestive Hemolysis as Test of Liver Function and Influence of Hepatic Extract on It. A. L. Levin, New Orleans.—p. 825.
*Bacillus Acidophilus: Results of Feeding Milk Culture. G. C. Mizell, Atlanta.—p. 835.
*Sectional Feeding. A. J. Waring, Savannah, Ga.—p. 841.
Influence of Obstetrician for Breast Feeding. C. R. Hannah, Dallas.—p. 847.
Fundamental Policies Involved in Public Health Administration. W. S. Leathers, Jackson, Miss.—p. 853.
Acute Osteomyelitis. D. Lewis, Chicago.—p. 861.
*Surgical Renal Tuberculosis. W. D. Haggard and H. L. Douglass, Nashville.—p. 870.
Diagnosis of Stone in Ureter. R. C. Bryan, Richmond, Va.—p. 876.
Combination Sound and Deep Instillator. A. G. Cowles, Ardmore, Okla.—p. 880.
*Pregnancy Following Double Ligation of Both Fallopian Tubes: Second Cesarean Section. H. A. Davidson, Louisville.—p. 881.
Placenta Praevia in Twin Pregnancy. W. G. Ruble, Morristown, Tenn.—p. 883.
Orbital and Ocular Tumors. E. C. Ellett, Memphis.—p. 884.

Digestive Hemolysis as Test of Liver Function.—A study of forty cases has convinced Levin that pathologic changes occurring in the liver can probably be detected early in their course by the test of digestive hemoclasis of Widal. The so-called intestinal toxemias and simple cases of indigestion are probably of hemoclastic origin. Hepatic opotherapy undoubtedly influences the Widal hemoclasis test. A large percentage of cases of cholecystitis and cholelithiasis give a positive result, and the effects of treatment should probably be checked by the test. Though the test is not conclusive, it invites further observation and study.

Results of Feeding Acidophilus Milk Culture.—Relief from chronic intestinal toxemia of the putrefactive type, and stasis, even in the presence of intestinal adhesions, has been secured by Mizell while feeding *Bacillus acidophilus* milk culture in conjunction with a general diet. Chronic ileocolitis and colon stasis of undetermined origin, as well as secondary to intestinal adhesions, may be relieved by feeding *B. acidophilus* milk. When results are not so secured, additional measures of a nonirritating character, directed to the relief of the constipation, and some modification of diet, may render the treatment effectual.

Sectional Feeding.—One point stressed by Waring is that the Southern pediatrist has his own particular and difficult problems in dietetics to handle, influenced markedly by local conditions.

Surgical Kidney Tuberculosis.—Haggard and Douglass report on sixty-one cases of nephrectomy. Tuberculosis was present in 49 per cent. of the specimens. There was no operative mortality. The late results are not so favorable. One third of the sixty-one patients died in the first five years after operation; 22 per cent. died within a year of the operation; 11.33 per cent. died from one to four years after leaving the hospital. All deaths were attributed to the tuberculosis. Among the patients that survived the operation from two to three years, one-third are well and two-thirds still complain of some cystitis, although the symptoms are greatly improved. Of those surviving from three to five years, 60 per cent. have no frequency of urination and in 40 per cent. mild symptoms of cystitis persist. In no case has the cystitis been treated following operation.

Pregnancy Following Double Ligation of Both Tubes.—In Davidson's case, after closing the uterus with three layers of catgut suture, both tubes were ligated with Pagenstecher thread. Each tube was tied twice, and the ligatures were one inch apart (four ligatures in all). About twenty months later the patient again presented herself pregnant. A living male child, weight 7 pounds 10½ ounces (3,500 gm.), was delivered by section. Following delivery and closing of the uterus both tubes were resected at the cornua of the uterus. The old scars in the tubes (two in each tube, one inch apart) were evident. Remains of the old ligatures were present. Scars and fine ends of linen thread showed where the tubes had been tied with Pagenstecher thread at the operation two years previously. No adhesions were found except slight adhesions of the broad ligament. This case proves that simple tying of the tubes even in two places on both sides with nonabsorbable sutures will not necessarily prevent the occurrence of a future pregnancy.

U. S. Naval Medical Bulletin, Washington, D. C.

19: 651-734 (Nov.) 1923

Analysis of 360 Cases of Valvular Heart Disease Discharged from Naval Service. W. A. Bloedorn and L. J. Roberts.—p. 651.
Complement Fixation Test and Other Findings in Malaria. J. H. Chambers.—p. 661.
Illumination of Dental Offices Ashore and Afloat. H. E. Harvey.—p. 667.
Open Operation for Extraction of Teeth. S. H. Reed.—p. 671.
Deep Roentgen-Ray Therapy. G. U. Pillmore.—p. 675.
*Case of Subphrenic Abscess. G. F. Cottle.—p. 683.

Subphrenic Abscess Following Appendectomy.—In Cottle's case the abscess developed after removal of the appendix and excision of duodenal ulcer. For three and one half months there was lack of unanimity of opinion as to the diagnosis. The roentgenologist was persistent in his original statement that the fluid was probably in the abdomen, but the physical signs and other clinical evidence failed to bring agreement. About four months after the abdominal operation, aspiration was performed and this showed that the pus was in the abdomen, not in the chest. Operation confirmed the diagnosis of subphrenic abscess.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 907-954 (Nov. 17) 1923

*Melanosis (Melanin: Melanoma: Melanotic Cancer). W. G. Spencer.—p. 907.
Difficult Midwifery in General Practice. S. G. Luker.—p. 913.
*Acute Lumbago Treated by Injection of Quinin and Urea. H. S. Souttar.—p. 915.
*Effect of Parathyroid on Blood Sugar Curve After Insulin. W. D. Forrest.—p. 916.
Surgery in Royal Navy. D. W. Hewitt.—p. 920.
Estimation of Physical Efficiency. M. Flack.—p. 921.
Normality; Selections of Recruits. C. R. Sylvester-Bradley.—p. 923.
Aeroplane Accidents. H. G. Anderson.—p. 927.
*Acute Intestinal Obstruction Due to an Unusual Foreign Body. S. B. Chambers.—p. 928.
Melena Neonatorum: Injection of Hemoplastin; Recovery. W. G. Nash.—p. 928.
*Treatment of Tetanus. H. K. Corkill.—p. 928.

Melanosis.—A very complete survey of melanosis is made by Spencer. He takes up the origin of melanin pigmented cells from epidermis; the formation of melanin pigment in the cytoplasm of the epithelial cells lining the ink sac of a cuttlefish; the presence of scattered foci of melanin pigmented cells in deep tissues of the skin, the eyeball, the central nervous system, in the course of nerves, in nerve ganglions, in the wall of the heart and large blood vessels, in retroperitoneal and mesenteric connective tissue; the formation of melanin from a colorless mother substance, melanogen. Spencer also reports the results of clinical observations on the pathologic formation of melanin. Experience incident to the removal of a large number of melanomas is similar to that in connection with other varieties of new growths. Free and early excision is not followed by recurrence in situ except in malignant cases in which the disease has already spread widely. Simultaneously with the change from melanoma to melanotic cancer there is a detachment and degeneration of cells producing metastasis which exhibits itself later. The general bearing of recent observations suggests the hope that further chemical research may arrive at a means of controlling the disease by therapeutic measures.

Quinin and Urea Hydrochlorid for Lumbago.—In two cases cited Souttar injected 5 c.c. of a 1 per cent. solution of quinin and urea hydrochlorid through a long fine needle into the center of the tender spot. Within ten minutes the acute pain entirely disappeared. A sense of stiffness remained, and a curious feature was that the patient did complain of general malaise.

Effect of Parathyroid Extract on Blood Sugar After Insulin.—It has been reported that when insulin and parathyroid are injected simultaneously into rabbits, convulsions (due to reduction of the amount of sugar in the blood) ensue in a much shorter period and with a much smaller dose of insulin (from one-third to one-fourth of the normal dose). Forrest applied these results to the human subject, and found that parathyroid was almost, if not quite, as efficacious when given by mouth.

Mechanical Intestinal Obstruction.—In Chambers' case, the obstruction resulted from swallowing a rubber preventive (condom) two-thirds filled with fluid and tied at the free end. This object completely obstructed the small bowel about eight inches from the ileocecal valve.

Serum Therapy of Tetanus.—In Corkill's case 89,000 units of antitoxin were administered in the course of fourteen days (39,500 in the first forty-eight hours)—21,500 intrathecally, 3,000 intravenously, 64,500 intramuscularly and locally. The patient recovered.

Edinburgh Medical Journal, Edinburgh

30: 565-620 (Nov.) 1923

Insulin Therapy. D. M. Lyon.—p. 565.
*Hallux Varus. D. M. Greig.—p. 588.
Epidemic of Measles in Highland Divi[illegible] 1914-15. W. Kinnear.—p. 593.
Case of Cleido-Cranio-Dysostosis. E.

Hallux Varus.—Greig cites the case of a boy, aged 17, who was hydrocephalic, doubtless from inherited syphilis, for his Wassermann reaction was definitely positive, and as a result of his cerebral affection he was feebleminded. He also had a left hallux varus and a bilateral and almost symmetrical ectrepodactlyly of the index fingers, i. e., a radical deviation of those digits.

Lancet, London

2: 1017-1066 (Nov. 10) 1923

Our Successors. A. E. Naish.—p. 1017.
*Principles of Symptomatology. J. Mackenzie.—p. 1020.
Gynecology and General Medicine. H. Moreland and V. Bonney.—p. 1025.
Unsuspected Nasal Sinus Disease. T. B. Jobson.—p. 1029.

Principles of Symptomatology.—The importance of the afferent nervous system in maintaining health and in the production of symptoms, Mackenzie asserts, is not sufficiently recognized, and it is not realized how little is known of this portion of the nervous system. This lack of knowledge constitutes one of the main reasons for the failure to understand the processes concerned in the production of symptoms. The autonomic nervous system is spoken of as an "efferent" system, and yet there is every reason for assuming that there is also an "afferent" system as large and as important in the maintenance of life as the efferent. The presence and peculiar function of receptors in the viscera is apparent. The organs of the healthy body are continually subject to a stream of impulses which enter from without, or are produced in the body by the activity of the organs themselves. These impulses, wherever they arise, are conveyed by the nervous system to the organs and modify their functional activity. This spreading of impulses in the central nervous system is the occasion of the production of a great many symptoms in widely separated organs, such as nausea, vomiting, sweating, pallor and pain, as in renal colic. Many phenomena are produced by visceral disease which are dependent for their production on stimulation of the afferent nerves. In certain states of ill health careful examination of the abdomen reveals the presence of hard and contracted muscles, and of areas of tenderness, due to a hyperalgestic state of the skin and deeper tissues of the external body wall. These phenomena indicate the presence of some disease process in the abdominal organs. Other phenomena often accompany these signs or appear without them, as nausea and vomiting, increased pulse rate, pallor, sweating, pain, etc. All these phenomena indicate increased activity of the afferent nervous system, and indicate further the presence of some particular stimulus which is capable of acting on the receptors of afferent nerves. There are only a few factors which are capable of producing this adequate stimulus, and Mackenzie has been able to identify only one—impulses arising from the contraction of muscles.

Medical Journal of Australia, Sydney

2: 351-376 (Oct. 6) 1923

*Treatment of Flaccid Paralysis. N. D. Royle.—p. 351.
*Tetanus. E. R. Roseby.—p. 360.
Proctitis with Peri-Anal Cutaneous Tuberculosis. R. W. Cilento.—p. 360.

Active Movements in Treatment of Flaccid Paralysis.—Royle found it impossible to conduct experiments on the effect of active movements on recovering muscles, but there appears little doubt that active movement is the normal physiologic stimulus both for an increase in growth and an increase in strength and that this is practically the only effective treatment at the present time. In the present state of knowledge the most desirable thing appears to be the maintenance of the denervated muscles in such a position that the returning power is able to operate to a maximum effect and the preservation of the normal ranges of movement. Splinting is necessary to effect this, but the splinting must not be rigid nor must it be continuous. Elongation of a paralyzed muscle does not retard the rate of recovery, but there is every indication that muscles which are periodically elongated and whose fibrous tissue is preserved at an adequate length, recover far more quickly than those which are kept in a constant position. Contracture is due not to overaction of the normal groups, but to underaction of the denervated groups and can be prevented by adequate passive movement. Massage is useful in preserving the normal elasticity of the skin, but probably its rôle is much more important after the actual return of the nerve supply, when the elimination of waste products from an intact muscle is necessary. The forms of electrical treatment now in vogue have no apparent beneficial result and certainly increase the cost and often the discomfort of treatment.

Tetanus Following Subcutaneous Injection of Saline Solution.—In a case of threatened miscarriage, Roseby removed a six weeks' ovum, curetted and plugged. About 600 c.c. of saline solution was injected under the right breast. Next evening the temperature was 40 C., the breast being painful and reddened. Twenty-four hours later the temperature had dropped to 37.8 C., the breast looked less angry, but abscess formation was anticipated. On the seventh evening the woman complained of stiffness of the jaw and pain and stiffness of the back of the neck and later similar stiffness of the muscles of the left hand. She was seen about three hours after the onset of these symptoms and then could open her mouth about half the normal extent, but with pain and stiffness. The abscess which had formed in the breast was opened and about 30 c.c. of pus and some gas bubbles escaped. Roseby injected 3,000 units of tetanus antitoxin into the right pectoral muscles. The symptoms gradually disappeared. In this case, the breast infection was evidently due to the saline solution containing tetanus bacilli from a septic douche can.

South African Medical Record, Cape Town

21: 461-484 (Oct. 27) 1923

Aspects of Genito-Urinary Surgery. Anesthesia. R. M. Muir.—p. 462.
Uretheral Catheterization Aid to Diagnosis of Kidney Diseases. E. B. Fuller.—p. 464.
Kidney Function Tests. A. R. McLachlan.—p. 465.
Diagnosis of Urinary Calculus. W. L. Gordon.—p. 467.
Roentgen-Rays in Diagnosis of Kidney and Bladder Diseases. H. W. Reynolds.—p. 468.
Pathology of Tumors of Prostate. T. A. Fuller.—p. 470.
*Activity of South African Grown Digitalis. J. W. C. Gunn and D. Morrison.—p. 471.
*Treatment of Bilharzia Disease in Natal. F. G. Cawston.—p. 472.
Reminiscences of Leprosy and Plague. H. B. Meijer.—p. 475.

Activity of South African Grown Digitalis.—Gunn and Morrison grew *Digitalis purpurea* from seeds. A tincture was prepared according to the British Pharmacopeia and tested on frogs and standardized. As the result of many experiments, it was found that the hourly dose of the tincture prepared from the digitalis grown by the authors was 0.005 c.c. per gm. Several confirmatory experiments on the mammalian circulation were performed. The minimal lethal (intravenous) dose for cats was 1.2 c.c. per kilogram. It would appear, therefore, that imported leaves might be well replaced by those grown in South Africa.

Treatment of Bilharziasis.—A study made by Cawston of patients who have undergone a course of treatment with intramuscular emetin injections reveals the fact that bilharzia patients are more disposed to the formation of renal calculus and appendicitis than other persons. It shows that the treatment must be continued for at least twenty-eight days to produce a permanent cure in the vast majority of cases. The eosinophilia has been shown to be a fair index of the results of treatment, when the test is made before treatment is commenaced and repeated a week or two after treatment has been discontinued. The complement fixation test has also been shown to be confirmatory in certain instances. The potassium salt of antimony has been found the most serviceable one in all cases, except when intravenous medication is contraindicated, as in some children, and a saline solution has been found to procure much less toxic effects than when either the potassium or the sodium salt is dissolved in distilled water. By giving a dose of not more than 1½ grains (0.1 gm.), except in those persons who are able to stand larger doses without showing any reaction, the potassium salt seldom is badly tolerated. With emetin there is always the risk of gradually increasing cardiac depression when from ½ to 1½ grains (0.03 to 0.1 gm.) is injected intramuscularly on alternate days; this depression is apt to be overlooked if the patient is confined to bed. The use of a 1 per cent. phenol solution and an occasional hot sea-water bath is invaluable to prevent irritability in young children as a result of local discomfort from intramuscular injections. The larger doses of emetin may produce vomiting, as occasionally occurs when the dose of tartar emetic has been increased too rapidly before the usual tolerance for the drug has been acquired.

Annales des Maladies Vénériennes, Paris

18: 577-656 (Aug.) 1923

Administration of Arsenicals. Lévy-Bing et al.—p. 577.
*Saprophytism and Venereal Disease. G. Belgodère.—p. 598.
Primary Gumma of Urethra. B. Valverde.—p. 614.

Saprophytism and Venereal Diseases.—Belgodère points out the possibilities of venereal infection from clinically, though not bacteriologically healthy women. A vulvovaginitis which dated from childhood seemed to be the source of the infection of the husband in one case.

Lyon Chirurgical

20: 553-680 (Sept.-Oct.) 1923

*Autohemotherapy in Furunculosis. J. Nicolas, J. Gaté and D. Dupasquier.—p. 553.
*Ulcers on Lesser Curvature. N. Hortolomei.—p. 562.
*Spontaneous Rupture of Arteries. P. Bonnet et al.—p. 566.
Cancer of Male Breast. R. H. Kummer.—p. 583.
Orthopedics in Austria and Italy. L. Michel.—p. 588.

Autohemotherapy in Dermatology.—Nicolas and Gaté have been experimenting for years with reinjection of own blood in treatment of various skin affections. The treatment succeeded in some cases and failed in others, but in typical furunculosis it has been almost constantly successful. It is by all means the best treatment known to date, they say. They draw the blood from a vein and reinject it at once subcutaneously or into the gluteal muscles. The dose is usually 10 c.c. for an adult and 2 c.c. for a child, repeating every second or third day, to a total of fifteen or twenty injections, to prevent recurrence. Local treatment is not necessary. Nine typical cases are described in detail, and emphasis is laid on the prompt relief of pain and the subsidence of the chronic staphylococcus septicemia. This treatment has never failed them in their two years' experience with it, and they have observed no reaction in furunculosis. Autohemotherapy does not act like a vaccine; the effect is more like a hemoclastic shock. Injection of healthy human, guinea-pig or rabbit blood acts the same way.

Resection for Ulcer of the Lesser Curvature.—Hortolomei reports two cases of longitudinal plastic resection with pyloroplasty, with complete and permanent success.

Spontaneous Rupture of Arteries.—Rupture occurred of the external iliac artery and vein in one of the two cases reported, and of the popliteal artery and vein in the other. There was gangrene of the legs with a diffuse and infected hematoma above the limit of the gangrene. A focus of atheroma in the middle layer of the artery was evidently the primary lesion.

Médecine, Paris

4: 893-968 (Sept.) 1923

Recent Progress in Biology. J. Gautrelet.—p. 893.
The Ninth International Congress of Physiology. M. Tiffeneau.—p. 904.
*Limits of Organotherapy. L. Hallion.—p. 909.
*Insufficiency of the Suprarenals. A. Sézary.—p. 915.
*Suprarenal Organotherapy. J. Gautrelet.—p. 920.
Avitaminoses and Nervous Balance. L. Randoin.—p. 927.
Pilomotor and Sympathetic Reflexes. André-Thomas.—p. 933.
*The Solar Reflex. D. Santenoise.—p. 939.
Linguomaxillary Reflex. H. Cardot and Laugier.—p. 944.
*Estimation of Acidosis. H. Labbé.—p. 945.
Diabetes and Insulin. H. Bierry.—p. 951.

Limits of Organotherapy.—Hallion pleads that physiology should determine the possible limits of organotherapy. The practicable limits, however, can be determined only by clinical observation. An experimental total extirpation of an organ causes a condition which is very different from the little insufficiencies of glands in pathology. It is possible that extracts from organs stimulate an only partially deficient organ, and only a part of their action may be due, as Biedl believes, to a direct substitution.

Insufficiency of the Suprarenals.—Sézary criticizes the present tendency to see insufficiency of the suprarenals in every patient who presents one or two symptoms which are also present in Addison's disease. Pigmentation of the skin even when associated with asthenia is not sufficient for the diagnosis. Langlois found a very characteristic peculiarity of this asthenia, namely, the fatigability of the patient. This recalls Erb-Goldflam's myasthenia. The enumeration of the different conditions that have been attributed to an acute insufficiency of the suprarenals would fill nearly half a page. Sergent makes the diagnosis if there is asthenia, hypotension and the white line on the skin. Sézary points out that the white line is a normal reaction, and the two other symptoms are ordinary phenomena.

Suprarenal Organotherapy.—Gautrelet observed extreme amplitudes of the pulse in dogs after slight compression of the suprarenal glands. The pulse fluctuated as widely as when epinephrin is injected. The action was also clear in a second dog receiving blood from the first, and also in a third, interposed, dog. The compression is not effective after injections of strychnin which apparently empty the glands of their stored secretion. He suggests trying to arrest shock in laparotomies by touching the suprarenal glands. The stimulation from this might act like an injection of epinephrin.

The Solar Reflex.—Santenoise reviews the experimental basis of the solar reflex. This reflex was discovered by Thomas, Roux and Claude, and consists in a diminution of the amplitude of the pulse during and after compression of the region of the solar plexus. The patient has to fast over night, and breathe freely during the experiment. Both hands of the physician press on the epigastrium until the pulsation of the abdominal aorta is felt. The reflex indicates increased tonus of the sympathetic, and is especially marked when the oculocardiac reflex is negative.

Acidosis.—Labbé found a comparatively constant relation between the hydrogen ion concentration of the urine and the ammonia index. The index shows the proportion of ammoniacal nitrogen to the total nitrogen.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 521-552 (Sept.) 1923

*Treatment of Retention of the Placenta. F. Chatillon.—p. 521.
Hemorrhagic Ovulation. R. Bonneau.—p. 528.
Associated Hematosalpinx, Hydrosalpinx and Fibroma. A. Grosse and M. Pinel.—p. 534.
Myomectomy in Pregnancy. R. Gilles.—p. 539.

Treatment of Retention of the Placenta.—Chatillon reduced by 50 per cent. the number of cases requiring manual extraction of the placenta, by injecting a fluid into the vein of the umbilical cord. This method of turgidization of the placenta was invented by Mojon in 1826, but was then forgotten and has been rediscovered lately. The technic is simple; 200-400 c.c. of saline solution are injected slowly into the umbilical vein, and the injection may be repeated. Three injections are rarely necessary. Manual extraction should not be done until after every other method has failed, for it is well known that the danger of infection is greater in this than in other obstetrical operations.

Archivio Italiano di Chirurgia, Bologna

8: 1-112 (Sept.) 1923

Histology of Repair After Gastro-Intestinal Resection. M. Dogliotti.—p. 1.
*Double Ureters with Pyelonephritis. C. Romiti.—p. 33.
*Precancerous Dermatoses. R. Rinaldi.—p. 75.
*Echinococcus Disease of the Kidneys. O. Cignozzi.—p. 89.

Double Ureters with Pyelonephritis.—Romiti removed the kidney in the five cases described, with complete recovery. In one case partial resection might have answered the purpose, but in all the others conditions called for removal of the entire organ. In the one case the supernumerary ureter was not recognized until the kidney was exposed, and it was too late to apply functional tests to the presumably sound half.

Precancerous Dermatoses.—Rinaldi protests against this term. He prefers to call the condition "Bowen's disease" or "cancer in dyskeratosis." He insists that both Bowen's disease and Paget's disease are malignant from the start. The case described is the fifteenth of Bowen's disease to be published. The patient was a man, aged 68, and the lesion was on the left hand.

Echinococcus Disease of the Kidney.—Cignozzi has had 2 cases of hydatid cyst in the kidney in his 70 cases of echinococcosis. The thorax was the seat of the lesion in 8, and the supraclavicular glands in one; all the others were in the abdomen. The possibility of spontaneous evacuation by the urinary passages is too remote to be counted on; conditions are less propitious for this than in the lungs. Conservative evacuation of the kidney through a lumbar incision was the treatment in his cases, suturing the sac to the muscles. The results of this marsupialization were as good as in his 40 other cases with the cysts in various other organs. This has given 100 per cent. cures, suturing the cyst to the muscles or skin. Healing was complete in forty or fifty days in the kidney cases.

Revista Española de Medicina y Cirugía, Barcelona

6: 557-618 (Oct.) 1923

- *Cancer of the Uterus. M. Bonafonte.—p. 557.
- *Foreign Body in Mediastinum. Remigio Dargallo and L. Carreras.—p. 559.
- *Chronic Tumors of the Adnexa. H. R. Schmidt.—p. 561.
- Present Status of Cardiovascular Disease. J. Salvat y Marti.—p. 572.

Cancer of the Uterus.—Bonafonte is professor of gynecology, and he says that one woman in every ten that applies for treatment at his clinic has cancer. He has also noticed that 50 per cent. of the cases of uterine cancer come from three special districts, as do nearly all the women under 30 with malignant disease. At the same time the number of operable cases has dropped in the last six or seven years from 8 or 10 per cent. to zero. This reduction in the number of operable cases he ascribes to the time wasted on radiotherapy while the cancer is progressing to an inoperable stage. The improvement of the surface under roentgen or radium rays does not prevent the steady progress of the cancer in the depths. Even the cases inoperable when first seen, and given palliative radiotherapy, seemed to have their course hastened. He calls a halt in treatment of cancer, saying that we are blinding and leading the public astray by our talk of effectual radiotherapy. There is only one reliable treatment of cancer, namely, excision, and this only in an early stage.

Unsuspected Foreign Body in Mediastinum.—The man had applied to the physician because he had a slight hemoptysis. He had always been clinically healthy since the age of 14 when an empyema had followed a stab wound. The roentgenogram at the age of 31 revealed the blade of a knife in the anterior mediastinum, resting on the left bronchus. Its nearly vertical shadow included two ribs, but its presence for sixteen years had never been suspected. The sputum findings were negative but the left superior laryngeal nerve seemed to be paralyzed.

Chronic Tumors of the Adnexa.—Schmidt reviews the ultimate outcome in the cases at the Bonn gynecologic clinic. They teach that no operation should be attempted as long as there is any fever. Three women died of peritonitis after an operation while there was still slight fever. Operative measures gave permanently good results in 30 per cent. of the cases, while persisting disturbances were manifest in 21.5 per cent. of the conservatively treated cases. Cuneiform excision of the fundus of the uterus with retention of one ovary allows menstruation to continue. Among the disappointing results of conservative operations are the rarity of normal pregnancy and the frequent impairment of the earning capacity. The results were the least favorable after unilateral salpingo-oophorectomy. This intervention should be restricted to cases in which the family is anxious for a child, or, when the inflammatory process is of long standing and provocative measures do not induce fever, the tube and ovary on the sound side seem normal, and adhesions are scarce in the region. The possibility of conception is not great and there is always apprehension that the tube and ovary left behind may develop an inflammatory process.

Revista Médica del Uruguay, Montevideo

26: 389-432 (Sept.) 1923

- *Grave Measles. M. A. Jaureguy.—p. 389.
- *Alcoholism in Uruguay. J. de Salterain.—p. 394.
- *Pneumothorax in Course of Typhoid. J. L. Vera.—p. 414.

Severe Measles.—Jaureguy comments on the peculiar gravity of the last epidemic of measles at Montevideo. In one family three children died, aged 3, 6 and 7, in the course of ten days. The general mortality from it during 1922 and 1923 so far has been 20 or 30 per cent. instead of the previous 2 to 5 per cent. In three cases the temperature was 42 and 42.5 C. The form with symptoms suggesting dysentery or cholera was most common, but necropsy revealed no specific lesions beyond those of ordinary acute gastro-enteritis. No treatment had any effect, except that in one case the condition improved after lavage of the stomach.

Alcoholism in Uruguay.—De Salterain cites a writer long before the Christian era who advocated that crimes committed while in a state of drunkenness should be given double punishment. De Salterain's figures show a decline in recent years in crimes committed under the influence of alcohol. He ascribes this in large part to the government prohibition of the sale of liquor on holidays. But the most promising innovation is the teaching in the grade schools of the evils of alcohol. Every school has been ordered to do some work in this line.

Pneumothorax in Typhoid.—The child aged 5 was in the second week of typhoid when complete left pneumothorax suddenly induced symptoms. Suppuration followed, with pneumococci in the pus. Under drainage and final intrapleural injection of a 10 per cent. medicated oil, for two months, the boy recovered although the pneumothorax recurred several times before the suppuration was finally conquered. In two previous cases the children died.

Semana Médica, Buenos Aires

2: 241-280 (Aug. 9) 1923

- *Hematoma Under the Nail. G. Bosch Arana and N. Tagliavacche.—p. 241.
- *Sweating Sickness. N. L. Cúneo and G. Segura.—p. 252.
- *Phlorizin Test for Early Pregnancy. M. L. Pérez and A. M. Brea.—p. 255.
- Insulin in Treatment of Diabetes. H. Chabanier et al.—p. 266.
- The Hospital as the Fundamental Basis for the Public Health. N. Capizzano.—p. 269.

Subungual Hematoma.—Bosch Arana and Tagliavacche say that a dentist's revolving-head trephine is the best instrument to use for releasing a hematoma under the nail. It is not necessary to have it electrically driven, as the tissues are not hard. The nail is not sensitive; no anesthetic is required. It is advised to trephine at each end of the hematoma; this releases the fluid blood in acute cases, and a sedative can be injected under the nail if the pain keeps up. In the chronic cases, the coagulated blood is scooped out with a right-angled probe from each trephine opening, after the blood has been softened or dissolved by hydrogen dioxid or other fluid injected through the trephine openings, with or without addition of cocain. The cavity emptied, it can be rinsed out with alcohol, and then dried with a dentist's rubber bulb blower. Then a semifluid, flesh-tinted paste is injected to plug the holes and the cavity, for cosmetic purposes and to keep dirt out. Thirteen illustrations acompany this "new chapter of chiropodic surgery," as they entitle it.

Miliary Sweating Sickness.—The woman was at the eighth month of a pregnancy when she developed headache, sore throat, slight fever and an exanthem and miliary eruption, with palpitations, oppression and paroxysms of sweating so profuse that the bed was wet as if a pail of water had been poured in it. Labor at the fourth day was terminated by forceps extraction of a healthy child and the mother's condition was apparently favorable, but soon grew worse, with pains in shoulders and elbows, fever up to 42 C., and death the tenth day. Necropsy revealed acute myocarditis and nephritis, fatty degeneration of the liver, purulent endometritis, and pleurisy with adhesions. No other cases developed from this.

Phlorizin Test of Early Pregnancy. — Pérez and Brea obtained a positive response in 86.8 per cent. of the women known to be pregnant, and a negative response in 90.10 per cent. of those known to be nonpregnant. They give the tabulated details of nearly 100 cases. In three pregnant women the test was negative at first, but became positive when repeated. In fifty-three of the women the pregnancy was of less than four months' standing.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1923

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where located.

Acta chirurgica Scandinavica. Irregular. 20 kronor. Stockholm.

Acta medica Scandinavica. Irregular. 20 kronor. Stockholm.

Acta Pædiatrica. Irregular. $5 per volume. Uppsala.

Acta scholae medicinalis universitatis imperialis in Kioto. Irregular. 3.30 yen per issue. Kioto.

American Journal of Anatomy. Bi-m. $7.50 per volume. 36th St. and Woodland Ave., Philadelphia.

American Journal of Diseases of Children. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.

American Journal of Hygiene. Bi-m. $6. 310-312 W. Monument St., Baltimore.

American Journal of the Medical Sciences. M. $6. Lea & Febiger, 706 Sansom St., Philadelphia.

American Journal of Obstetrics and Gynecology. M. $6. C. V. Mosby Co., St. Louis.

American Journal of Ophthalmology. M. $10. 7 W. Madison St., Chicago.

American Journal of Physiology. M. $5 per volume. 1222 St. Paul St., Baltimore.

American Journal of Psychiatry. Q. $5 per volume. Johns Hopkins Press, Baltimore.

American Journal of Public Health. M. $5. 370 Seventh Ave., New York.

American Journal of Roentgenology and Radium Therapy. M. $6. Paul B. Hoeber, 67 E. 59th St., New York.

American Journal of Syphilis. Q. $7. C. V. Mosby Co., St. Louis.

American Journal of Tropical Medicine. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.

American Review of Tuberculosis. M. $4 per volume. Williams & Wilkins Co., Baltimore.

Anales de la Facultad de Medicina, Universidad de Lima. Bi-m. *1.50 soles per issue. Lima, Peru.*

Anales de la Facultad de Medicina, Universidad de Montevideo. M. 6 pesos per year. Montevideo.

Annales de l'Institut Pasteur. M. 55 francs. Paris.

Annales des maladies vénériennes. M. 52 francs. Paris.

Annales de médecine. M. 55 francs. Paris.

Annali d'igiene. M. 60 lire. Rome

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Annals of Clinical Medicine. Bi-m. $6. Williams & Wilkins Co., Baltimore.

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SOCIETIES

Acad.—Academy
A.—Association
Am.—American
Coll.—College
Conf.—Conference
Cong.—Congress
Conv.—Convention
Dist.—District
Hosp.—Hospital
Internat.—International
M.—Medical or Medicine
Nat.—National
Phar.—Pharmaceutical
Phys.—Physicians
Ry.—Railway
S.—Society
Surg.—Surgical or Surgeon, Surgery

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